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A Summary of Current Program, 9/30/65

and Preliminary Report of Progress

for 10/1/64 to 9/30/65

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CURRENT SERIAL RECORDS

MARKETING ECONOMICS DIVISION
of the
ECONOMIC RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
and related work of the
STATE AGRICULTURAL EXPERIMENT STATIONS

This progress report is primarily a tool for use of scientists and administrators in program coordination, development and evaluation; and for use of advisory committees in program review and development of recommendations for future research programs.

The summaries of progress on USDA and cooperative research include some tentative results that have not been tested sufficiently to justify general release. Such findings, when adequately confirmed, will be released promptly through established channels. Because of this, the report is not intended for publication and should not be referred to in literature citations. Copies are distributed only to members of Department staff, advisory committee members and others having a special interest in the development of public agricultural research programs.

This report also includes a list of publications reporting results of USDA and cooperative research issued between October 1, 1964, and September 30, 1965. Current agricultural research findings are also published in the monthly USDA publication, Farm Index. This progress report was compiled in the Marketing Economics Division, Economic Research Service, U. S. Department of Agriculture, Washington, D. C.

UNITED STATES DEPARTMENT OF AGRICULTURE

Washington, D. C.

October 1, 1965

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INTRODUCTION

Research on economic problems in agricultural marketing is centered in the Marketing Economics Division. Research is conducted on a wide range of functional and commodity problems that arise in moving the Nation's vast output of food and fiber from producers to consumers. An outstanding characteristic of the research program is its concern with changes in marketing and their implication to producers and consumers. Results of the research are designed to help farmers, marketing firms, public officials, trade groups, and others make sound operating and policy decisions relating to marketing farm products, including procurement of supplies used in farm production.

The overall objectives of the research program are to find ways to:

- (1) Increase the efficiency of the marketing system, to keep down costs and contribute to economic growth;
- (2) Promote orderly marketing adjustments to changes occurring within and outside of agriculture; and
- (3) Improve and strengthen markets for farm products in face of a continuing rise in production, higher distribution costs, and competition from nonagricultural products.

The Division conducts a continuous program of research, both basic and applied, involving studies on market institutions and market power; prices, margins, and costs; location and interregional competition; new products and services; merchandising and promotion; and examination of distribution programs and market outlets.

Close-working relations are maintained between the staffs of the National Commission on Food Marketing and the Marketing Economics Division. The Commission has been supplied with farm-wholesale and wholesale-retail spreads for items in the market basket for the period 1947-1964. Data on other components of farm-retail spreads for 1963 are being provided. In addition, the Division is contributing to various special studies of market structure requested by the Commission. Work specifically undertaken for the Commission is on a reimbursable basis.

Steps have been initiated to fully integrate related lines of work into an overall comprehensive program. This action has involved, in some instances, the combining of two or more line projects; however, work is kept in those parts of the Division where special talent is available for the particular assignment. Along with the development of a more comprehensive research program, review committees have been established to carefully screen proposals for new work. The screening process involves ascertaining how the proposed

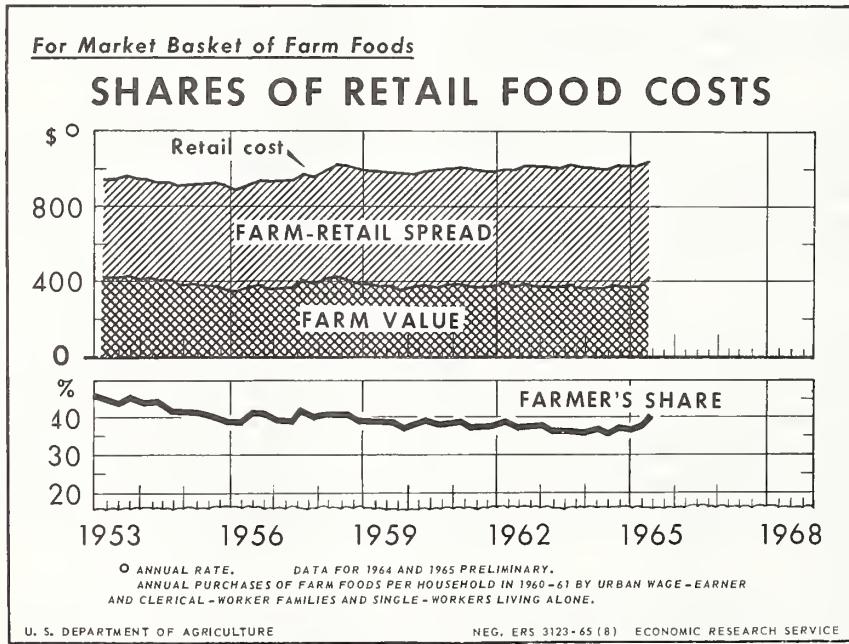
work supplements and/or complements the existing program, how it conforms to advisory committee recommendations, importance of problem, technical soundness of plan of work, etc. Where new work is approved, the review committee has a periodic followup with the project director and other research personnel involved to review the problems confronted and status of work.

A trained staff of 106 research scientists is continuously working to provide analyses in the vital marketing problem areas enumerated. Approximately one-fourth of the professional staff is located in the field. The Division actively cooperates with other organizational units in the Department, other Federal agencies and land-grant universities to provide a balanced attack upon major problems of mutual interest.

Some research of the Division is conducted by contracts with other public and private organizations. Also, Division personnel participate in the planning, reviewing, and at times, the execution of marketing research being conducted by regional research groups of land-grant university personnel.

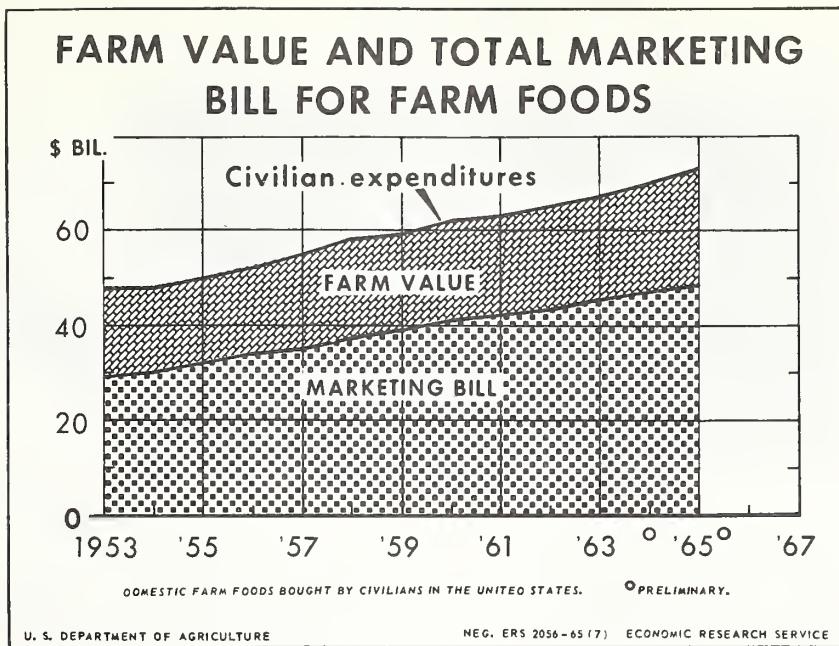
Illustrated highlights of some studies completed or partially completed during the reporting period:

Figure 1



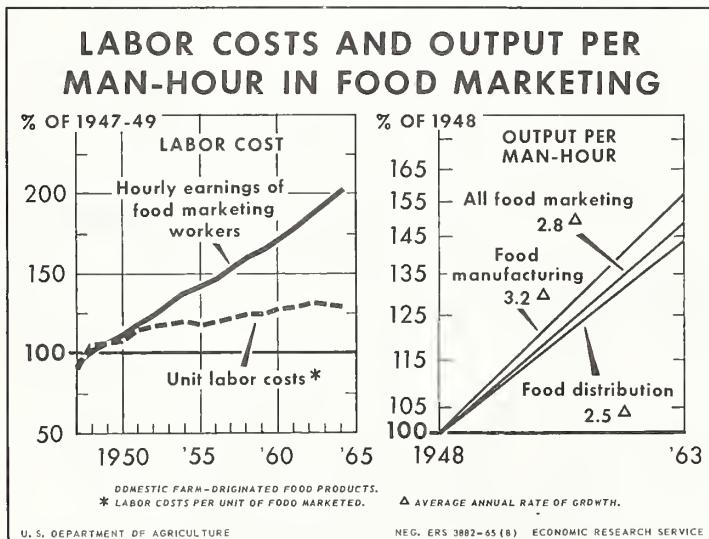
The spread between retail store costs and farm value for a market basket of farm originated foods was about 2 percent lower in the first half of 1965 than a year earlier. A large part of this decrease resulted from a narrower spread for meat products.

Figure 2



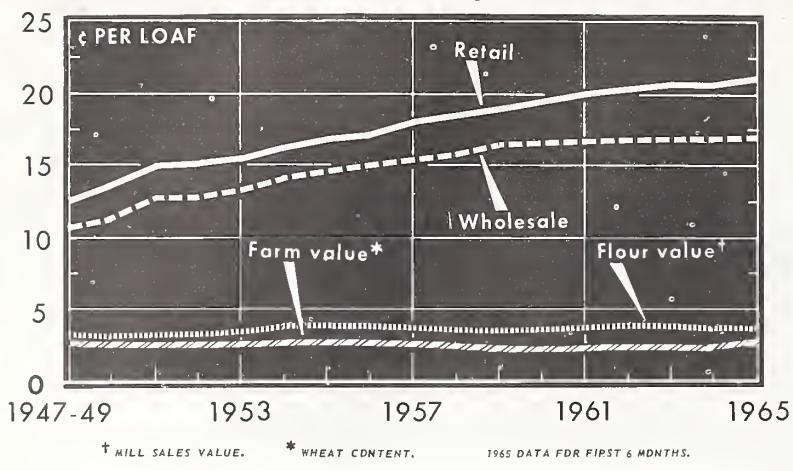
Increases last year in the marketing bill, consumer expenditures, and in returns to farmers resulted primarily from a larger volume of marketing.

Figure 3



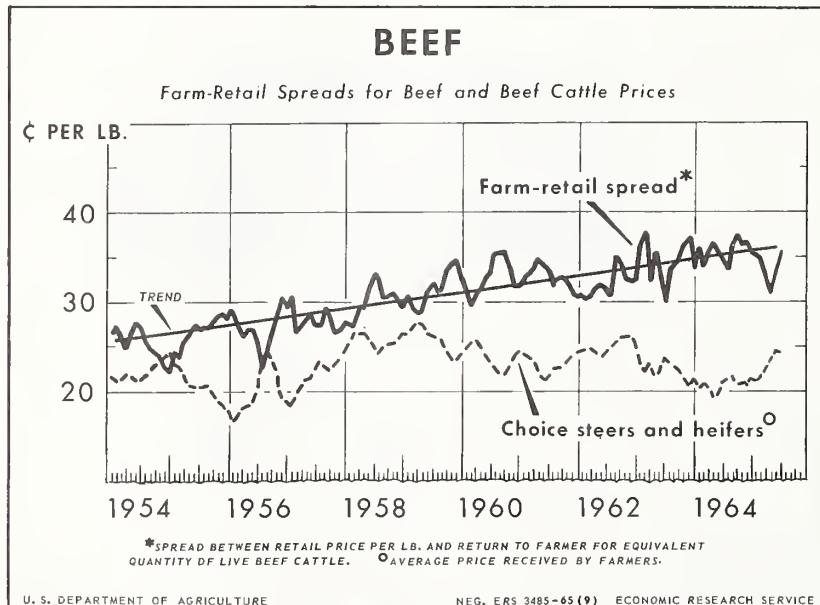
Costs of labor in 1964 accounted for approximately 44 percent of the marketing bill and were up 3 percent from a year earlier. Although average hourly earnings of employees rose in 1964, the labor cost per unit of product decreased.

Figure 4
WHITE BREAD PRICES
U. S. Average



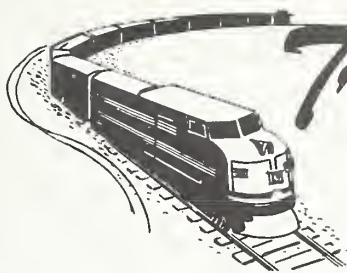
In nearly every year since World War II, the price of a loaf of bread has increased. In contrast, the price received by farmers for wheat has declined in more than half the years. Much interest has centered on prices of bread, flour, and wheat and their respective relationships.

Figure 5



A remarkably persistent upward annual trend of about 1.1 cent per retail pound for choice grade beef prevails in the farm-retail spread. Deviations from the trend occur in periods when prices are falling or rising rapidly.

Figure 6



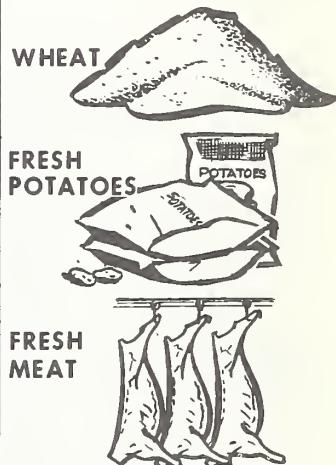
Transportation Changes

RAIL FREIGHT CHARGE AS A % OF WHOLESALE PRICE

1956	1959	1963
8.2	10.1	9.1
20.9	27.5	27.0
4.5	3.9	3.5

**RAIL FREIGHT RATE INDEXES
1957-59=100**

1957	1959	1963
99.0	100.0	96.0
104.8	94.3	91.9
111.0	89.0	87.0



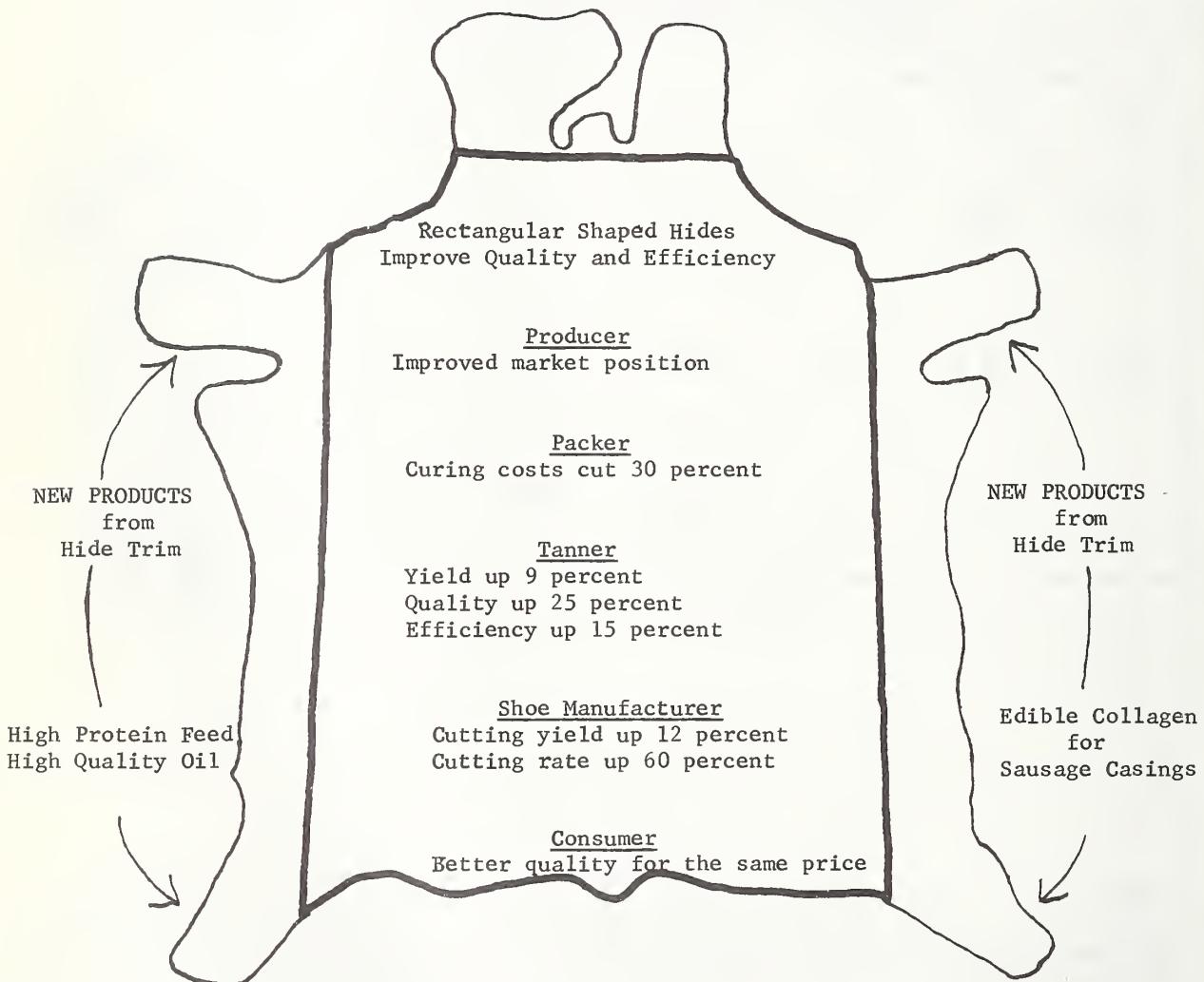
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NEG. ERS 3897-65 (8) ECONOMIC RESEARCH SERVICE

Freight rates for moving many farm products have been declining since the late 1950's. Recently completed studies for moving grain in the Northwest and North Central States show a decrease in rail rates as well as significant shifts by shippers from rail to more truck and barge service.

Figure 7

MARKET RESEARCH DEVELOPS NEW HIDE TRIM
and
EVALUATE NEW PRODUCTS
to help
MAINTAIN AND FIND MARKETS FOR ANIMAL PRODUCTS



AREA I

ORGANIZATION AND PERFORMANCE OF MARKETS

Problem: Economic research in agricultural marketing revolves around the problems of increasing efficiency in the processing and distribution system and providing a foundation for orderly adjustments to changes inside and outside of agriculture. Marketing must be looked upon as a dynamic and changing process. The capacity to adjust to and cope with the dynamics of modern marketing is required increasingly of producers and distributors of farm products. Demands of a more knowledgeable and sophisticated consuming public are adding to the pressures for an even more rapid escalation of developments and changes within the marketing system. Changes in institutions and redirection of public policies and programs are modifying the economic environment in which marketing firms must perform and operate. Because of rapid changes and increasing complexities associated with a dynamic marketing system, it is necessary that a continuous program of research be conducted in marketing--a program aimed at keeping producers and marketing firms abreast of the flow of events and providing information necessary to them in making proper and orderly adjustments to change.

Research in the area of organization and performance of markets is designed to find solutions to economic problems of marketing, including the transportation of farm products. This involves economic studies of: Size, ownership, financing, structure and practices of marketing firms; measurement of farm-retail spreads; cost of marketing and allocation of costs and charges among agencies and functions; resources used in marketing; measurements of growth and labor productivity; demand for and supply of food marketing services; pricing of products and services; interregional competition; and farmers' bargaining power. Economic studies of transporting farm products include: Determining patterns of product flow that will maximize returns to farmers and minimize costs to consumers while taking into account the needs of carriers, factors affecting carrier costs and charges for moving farm products and supplies, impact of technological changes in transportation services and facilities upon product flows and optimum locations of processing facilities, industries, etc.

Such studies furnish a basis for adjusting to change and keeping abreast of technological and scientific developments. Likewise, the studies provide a sound basis for both private and public policy decisions as they relate to marketing.

USDA AND COOPERATIVE PROGRAMS

The Department has a continuing long-term program of economic research designed to increase the efficiency of marketing and assist producers and marketing agencies in adapting to a changing environment. Research is conducted on a wide range of functional and commodity problems that arise in moving farm products from producers to consumers. The program involves both basic and

applied research and is primarily oriented to problems of national and regional scope. Field studies are often conducted jointly with State agricultural experiment stations, with processors and distributors of agricultural products, transportation agencies, and agriculturally-oriented trade groups. Producer groups and trade organizations have, with increasing frequency, made financial contributions to the Division research efforts. Many staff members are working closely with the staff of the National Commission on Food Marketing in a consultative role and in research studies on price spreads and market structure. These studies are partly financed by the Commission.

The Department's program of research and related reporting activities are conducted from headquarters in Washington, D.C., with a limited number of field stations located throughout the United States. In addition to conducting research, field station personnel perform a special service in keeping the Division alerted and informed on emerging and significant problems in marketing.

In the overall area of organization and performance of markets, the scientific effort devoted to this research in the past year amounted to approximately 78 professional man-years. By functional subareas the research effort in professional man-years was distributed as follows: Market institutions and market power, 26; prices, costs, and margins, 40; and, location and interregional competition, 12.

PROGRAM OF STATE EXPERIMENT STATIONS

A. Market Institutions and Market Power

Changes in the structure of marketing agricultural products affects the bargaining power of buyers and sellers. These changes also affect marketing practices, services and prices--and ultimately producers, marketing firms and consumers. Research underway at the State stations deals with these changes and some possible alternatives.

Fifteen studies in 13 States are concerned with the direction and magnitude of major changes in firm organization, economic forces, policies, and practices influencing changes in marketing grain and the relationship between economic forces and policies, and the trends in market structure. Information on consolidation, integration, mergers, and their consequences, along with decision-making processes, is being sought. Information on the magnitude and future course of changes would help in expediting and directing feasible trends. Recent extension of operations of many marketing firms toward both sources of supply and product distribution may be materially

altering the structure of grain markets. Ease of entrance and exit is also being investigated. Most of the studies concerned with market structure and performance are a part of regional projects. A total of 10.3 professional man-years is devoted to this area of work.

Four hay and feed grain projects are underway at four stations. Three of these projects were part of a western regional project and are concerned with functions performed in marketing hay and feed grains including adequacy of market information on supply, demand and prices, adequacy and acceptability of grade standards, and feasibility of improving market performance. One study of hay marketing in the Southeast is examining the functioning of local markets and with demand projections. These studies involve 2.5 professional man-years at State experiment stations.

The major part of the experiment station's program of research on cotton was conducted under a Southern regional project investigating the economic efficiency of alternative cotton marketing systems and practices. The project, which is near completion, studied the effects of size of gin and methods of cotton assembly and storage on the costs of marketing cotton. The total station support of this research involved 7.5 professional man-years. Eleven projects on broilers are underway at 10 stations. Nine of them are contributions to a regional research project investigating market structure, with emphasis on relative efficiency of various components of the integrated structure. One study in the Northeast is analyzing the structure and practices of the broiler-chick-hatchery operation. Another study in the South is concerned with decision making, coordination, and control in vertically integrated servicing and processing firms.

Eighteen projects at as many stations are concerned with commercial egg marketing, 11 of which contributed to the NCM-31 regional project on coordinated egg production and marketing programs, and 7 contributed to NEM-21 which is evaluating the economic feasibility of alternative egg marketing systems in the Northeast. A total of 26.5 professional man-years at State experiment stations is involved--12.2 are for broilers and 14.3 are for eggs.

The State experiment stations are conducting considerable research at the regional and State level in order to gain a clearer understanding of changes in the livestock marketing system. Some of the questions being studied are: (1) What proportion of the livestock is now being sold direct, through auctions, and through terminal markets? (2) what is causing the trend away from terminal markets? (3) what is the geographical structure of the livestock marketing and processing industry and what is causing it to change? (4) what is happening to the old established meatpacking plants? (5) what kind of new firms are coming in? (6) are the types and location of marketing services and facilities changing? (7) what is the impact of the chain stores on the meat processing industry? and (8) what impact is new processing, transportation, and communication technology having on the industry's structure?

With all the changes taking place in livestock and meat marketing, particularly the trend toward concentration of volume into the hands of national food chains, close attention is being paid to changes in market structure, conduct, and performance and to what might be done to improve the competitive tenor of the markets. A small amount of research is evaluating the adequacy of market information.

Current research on wool is directed toward appraising existing marketing practices and evaluating alternative channels of sale. The number of professional man-years involved is 24.

Stations in the southern, north central, and western regions are analyzing changes in the processing, manufacturing, and distribution of dairy products which are associated with changes in demand, supply, technological, and institutional factors; and to relate these changes to the structure, behavior, and performance of markets. Public policies, which facilitate adjustments within the various regional dairy industries, are also investigated. Additional studies deal with the effects of bulk-milk handling on the structure and efficiency of milk assembly; the degree of consolidation necessary for successful cheese, butter, and milk powder plant operations and the nature and type of competition associated with structural changes in the dairy industry. The station support of this research amounts to 22.2 professional man-years.

Nine station projects in horticultural specialties are in progress. Six are on floricultural products of which five are contributions to NEM-8. This project is studying the economic problems in marketing floricultural products in mass market outlets. This involves analysis of the existing situation, practices in procurement, handling and selling, and evaluation of potentials, including impact on growers, wholesalers, and retail florists. An investigation in the southern region is directed at requirements of local retail florists as to sources of products and material and transfer costs.

Three studies on ornamentals are underway. Two are in the southern region and are studying marketing channels used and price-quantity relationships for the foliage plant industry, and movement of products through the market, sources of supply, destination of shipments and relationships among firms in the market. One study is of the Hawaiian nursery and landscape industries as to practices followed, growth potential, and financial requirements. A total of 5.5 professional man-years at the State experiment stations is involved.

Much of the research at the State agricultural experiment stations on fruits and vegetables relates to structure, practices, and market performance. Much of the research relates to trends in market structure and practices, causes of such trends, the extent to which producer and wholesaler practices meet the needs of large-scale buying by retailers, development of suggested organizational structure which will increase marketing efficiency and returns to growers. A total of 17.8 professional man-years is devoted to this area of work.

Two stations each have tobacco projects. One deals with the existing market structure, historical supply-demand relationships, and possibilities for price improvement, the other describes the organization and operation of tobacco auction warehouses. It involves a total of 1.9 professional man-years at the State experiment stations.

The markets for the various kinds of sawmill-produced products and wood to be used such as woodpulp, veneer, plywood, cooperage, poles, posts, and piling are often of a specialized nature and not well understood. Until the initiation of regional research little research had been conducted relating to the economics of marketing forest products. Recently serious attempts have been made to identify important researchable problems and comprehensive studies of the structure, characteristics, and conduct of the marketing system are being made. The 17 State projects in this area are directed toward finding ways to improve market efficiency as measured by physical input-output ratios and to improving market performance in channeling the various species, tree sizes, etc., to their highest economic use. A total of 9.8 professional man-years is devoted to work in this area.

The agricultural experiment stations have been extending their research effort into the marketing channels and to the marketing functions and services between producer and consumer. As farm products move toward the consumer many of them tend to lose their identification in the marketing channels. For some purposes the experiment stations are finding increasingly that research into marketing can most efficiently and effectively be carried on without regard to commodity but instead with a focus on marketing functions or the general nature of the market through which all foods flow.

Presently some States on a cross-commodity basis are describing and analyzing the market organization and structure in agricultural marketing and processing industries. This involves the number, type, and size of firms in an industry and the degree of control which individual firms and groups of firms might have. The degree and importance of product differentiation is noted as well as the level of margins and profits and the industry's progressiveness in developing and adopting new technology. This research is expected to shed light on the effects of market organization and structure on quantity and quality of farm products marketed, on marketing costs and efficiency, and on prices received by farmers. Because of the increasing concern over economic concentration in the food industry, studies are being made into the structure, conduct, and performance of various segments of the food processing and the food distribution system. Some stations are studying the patterns and trends in growth and development of firms which have grown through vertical integration and those which have not. In some States roadside markets are being studied as an outlet for farm products. The total research effort on a cross-commodity basis is 10.2 professional man-years.

Because of the increasing evidence that efficiency in farming is dependent upon the efficiency of the supply and service business, the agricultural experiment stations are expanding this research. Expansion of vertical integration also has added to the interdependency between farming and the supply businesses. Some studies of the farm supply and service businesses are designed to develop guidelines for increasing their operating efficiency and to evaluate the nature and level of competition among them. Other studies seek to determine how wise farmers are in buying supplies and how their performance in this respect can be improved. The total research effort in this area is 2.0 professional man-years.

B. Prices, Margins and Costs

Prices and marketing margins are continually being examined in light of changes in production, processing, storing, transporting, and distributing agricultural products. Historically, retail prices have increased relatively more than farm prices which is a reflection of increased marketing services of many products. There is a high degree of public and legislative interest in this research being conducted by the State stations.

Sixteen projects on marketing poultry and poultry products are in operation at 15 stations. Ten studies on eggs are concerned with adjustments in the egg-products industries, investigating trade practices costs and egg quality; analyzing country point egg pricing systems; marketing an economic analysis of alternate systems of materials handling for egg packing plants; and developing an analytical model for a least-cost table egg marketing complex. Five studies on poultry meat marketing are concerned with techniques for increasing demand for locally grown broilers, effect of marketing organization on broiler marketing costs, shifts in supply and demand for broilers and their effects on future marketing resource requirements, prospective demand for broiler meat in the South, and efficient processing and utilization of chicken meat. One study is directed at improving the techniques for predicting prices and marketing of poultry. A total of 9.4 professional man-years is assigned to poultry and poultry products research including 4.9 on eggs, dealing with prices, margins, and costs.

A variety of studies are underway on livestock prices including prices received by farmers for livestock sold through different marketing channels, of trends in seasonal price patterns, of prices in particular markets, of supply-demand relationships, of the effect of meat promotion on prices, of factors affecting feeder cattle and feeder pig prices, and of consumption trends and potentials. These studies in some instances are being synthesized to project future price and market conditions. Some studies are being made of the adequacy of livestock grades and standards in estimating meat yield and quality. A number of studies are in process on marketing margins on meats, including ways of reducing marketing margins through improving the physical efficiency of marketing facilities and processing plants. One project on wool seeks to reduce the handling cost on wool by finding improved baling and packaging methods. Total man-years in this research area amount to 30.3.

Dairy marketing research by the State stations is concerned with the supply, demand, price, and utilization of dairy products. Studies estimate the demand and supply functions for Grade A milk and equilibrium price levels; investigate marketing and merchandising methods that influence the demand for and sales of milk, and analyze the efficiency of marketing operations and methods. Other studies are exploring equilibrium prices and product flows in the Northeast and price differentials and product flows between the northeast and the north central regions. Studies also are underway to determine the acceptability of product innovations such as "fortified" skim milk; the demand for and potential supply of butter of various flavors and quality; the economic evaluation of pricing plans and payment systems for milk, and the feasibility of pricing plans based on the various components of milk.

Another segment of dairy marketing research deals with costs, margins, and efficiency of operations. A cooperative regional project in the Northeast determines the effects of economic, technological, and institutional conditions upon the costs and efficiency of milk assembly, processing, and distribution. Other studies deal with the production and marketing of semi-perishable dairy products; the economic effects of bulk-milk handling; and the economic efficiency of cheese and dry milk production. The station support of this research amounts to 28.9 professional man-years.

A recently activated regional project in the South is investigating the consumption patterns for cotton and competing fibers and decision-making agencies within the organizational structure of the cotton industry which influences cotton utilization. This research is to determine the relative importance of factors which influence the selection of fibers for given end products. States in the Southwest are cooperating on a regional study to determine the characteristics of cotton, type of ginning, and methods of marketing that may have a significant influence on prices received by cotton producers. Variations in cotton prices are being related to grade, staple, uniformity, size of lot, variety, location, time of season, density, type of ginning, type of harvesting, and type of buyer. Other research is evaluating cotton grading and fiber testing instruments as a means in identifying cotton quality and improving market efficiency and prices. Another study is designed to determine the effect of moisture on the grade, staple, fiber properties, and the spinning performance of cotton lint. Additional work is investigating the problems and costs involved in alternative methods of packaging cotton; determining the effects of different ginning practices on ginning costs and the value of cotton lint produced, and, investigating the economic performance of cotton lint in the marketing system when harvested by mechanical spindle pickers as compared to mechanical stripers. This research involves 5.3 professional man-years.

One station is studying factors affecting labor requirements in market preparation of flue-cured tobacco. A total of 0.7 professional man-year is involved.

One station is investigating costs of hauling sugarcane in motor trucks and alternative methods of compensating growers. It uses 1.6 professional man-years.

One station is studying costs and margins in handling hay in the Pacific Northwest, with emphasis on more efficient alternative methods and possible effects on potential market outlets. State experiment stations' hay marketing research on prices, margins, and costs uses .07 of a man-year.

A study in the Pacific Northwest is analyzing market price trends for dry edible peas, and factors useful in predicting market quantities and prices. Another study is concerned with an evaluation of supply, demand, and prices for certified seed crops, and effects of methods of marketing and competitive bargaining situation on the level of prices received. A total of 1.6 professional man-years is involved.

Five States are conducting studies concerned with supply, demand, utilization, and pricing of wheat. The question of demand for specific grains and qualities and how accurately local prices reflect demand is being studied on a limited basis. Expansion of market outlets, new uses and changes in utilization patterns, and supply and flow patterns of wheat having specific quality characteristics are being studied by three States. Closely related to price studies are such items as costs, margins, and efficiency of operation and firm management. A total of 6 professional man-years is involved.

Two stations have projects in the horticultural specialties area. One study is concerned with factors which influence retail nurserymen in their purchasing of woody ornamentals, and a determination of the relationships among landscaping service, nursery retail sales, and other business aspects of firms in the nursery industry. The other study is to determine costs of grading flowers and the differences in returns between graded and ungraded flowers. A total of 1.0 professional man-year is involved.

An important segment of research relates to costs and efficiency in firm operations including assembly, processing, wholesaling, and retailing. These investigations often involve economic-engineering type of studies in which the analysis of alternative methods of performing the elemental functions which form the basis of the marketing system. Eight States are participating in Regional Project SM-30, called Establishing Guides for Adjustments by Firms Marketing Fruits (Non-Citrus) and Vegetables in the Southern Region. The project develops the physical input-output data necessary for estimating costs of alternative methods of performing individual marketing operations. Merchandising and promotion studies deal with the packaging, advertising, store displays, and consumer response. A few studies relate to prices received, product differentiation, and demand elasticity. It involves a total of 14 professional man-years.

Market stability for forest products is frequently lacking and wide differences in prices received for similar products in a given locality often prevail. This is especially true of timber sold on the stump. Nine studies are underway analyzing the relationship of prices received to selling practices, knowledge of quantity and quality of products sold, availability of market information, number of buyers contacted and alternative markets, and volume of business of buyer. Two cost studies of certain marketing operations are underway. A total of 5.1 professional man-years is involved.

Many of the State experiment stations analyze the supply, demand, and price situation for the products of their State. USDA research is often used as a base but further research usually is needed to meet State and local needs. The State stations also study factors that affect price and the technique for measuring and isolating the impacts of particular variables. While many studies of seasonal price patterns have been made in past years, some researchers are using a macro approach to intraseasonal pricing strategies. One State is studying changes in food consumption not attributable to prices and incomes, and another State is relating product quality and economic influences to grades and standards. This research involves 11.5 professional man-years.

Research is underway to determine the market and distribution system for fertilizers in the cornbelt States. This research analyzes the production and marketing costs of liquid fertilizer plants in relation to size of plant, type of plant, and percentage of capacity utilized. Recommendations will be developed as to ways the marketers of liquid fertilizer can serve their markets more efficiently. Another study of costs and efficiency in distributing commercial feed seeks to find more efficient ways for the industry. This research involves 0.6 of a man-year.

C. Location and Interregional Competition

Changes in the technology of producing and processing agricultural products has much impact on the comparative advantage of one producing area over another. Changes in transportation rates and costs also affect the competitive position of some areas more than others. These changes and their effects on the location and interregional competition are being studied by the State stations.

Since grain marketing and processing facilities require extensive capital investments and can be used for few other purposes, correct decisions relative to type and location are important. Sixteen studies concerned with transportation and location of grain marketing facilities are underway. Most of these studies contribute to regional undertakings. The researchers in the north central and southern regions have exchanged information and are coordinating their research to maximize the efforts of both regions. Some of the work in this area is closely related to the research reported under Market Institutions and Market Power.

Transportation rates, services, and relative prices undergo changes that cause shifts in the source and destination of grains and in the type of facilities needed for handling grains. The changes in freight rates in recent years are having significant effects, especially in the southern region. The impact of increased exports also has had its effect on location of needed facilities in the North Central States. A total of 14.3 professional man-years is involved.

Three stations have four projects on poultry and poultry products marketing. One study deals intensively with factors and potentials for the competitive position of the Delmarva broiler industry, its economic advantages and disadvantages, market potential and adjustments needed to realize them. The other studies are concerned with spatial equilibrium models for eggs and for broilers, each with specific area differentiations showing supply, demand, equilibrium price, and transfer costs. Another study is determining regional supply, consumption, price, and shipping patterns of poultry products, including impacts of potential foreign markets. It involves a total of 2.9 professional man-years.

Because of the highly dynamic nature of the livestock and meat marketing system there is considerable research interest in discovering the factors that determine the optimum location for livestock marketing and processing facilities. This interest extends into an analysis of the comparative advantage of competing areas in fattening cattle, taking into account access to feeder cattle, feed grain supplies and prices, and nearness to consuming centers. Changes in meat processing technology and retail organization have tremendous implications as to where meat processing facilities can best be located. Changes in transportation technology and rates and in highway development also affect optimum location. Total man-years in this effort are 15.5.

Some State research is concerned with transportation costs and their impact on the competitive position of various producing areas. Quality maintenance and storage costs are important factors to be considered in transportation and interregional competition analyses. Five States and ERS are participating in a western regional project studying locational and product competition among selected horticultural food crops. Some related work is being conducted in the other regions. A total of 7.5 professional man-years is involved.

Although most forest products are relatively nonperishable and some are shipped long distances, until recently little research concerned with cost of transportation and interregional competition has been conducted. Regional project WM-50, called Intraregional Competition in Lumber and Plywood Marketing in the Western United States, will develop and apply an economic model with which to study the efficiency of intraregional lumber and plywood distribution. The project may be expanded into an interregional study. Studies of market structure in other regions have included the movement of forest products and market acceptance. It involves a total of 5.2 professional man-years.

The State stations presently are conducting little research into interregional competition on a cross-commodity basis. There are two projects, however, on transportation--one on freight rates and another on the interstate highway system. This research will directly and indirectly answer questions about the probable impact of future transportation developments on interregional competition. It is anticipated that the States, especially in the West, soon will be giving more attention to this research area. The current level of research effort in this area is 0.8 of a man-year.

PROGRESS--USDA AND COOPERATIVE PROGRAMS

A. Market Institutions and Market Power

The structure of markets for agricultural products is changing in many dimensions and the market power of buyers and sellers and practices of marketing firms are shifting in response. All these changes have significant impacts on farmers, consumers, and marketing agencies. The Marketing Economics Division conducts studies on many phases of this changing market.

Data from a study on price behavior in retail food stores of different ownership types show practices at this level related to price levels and changes. For example, a preliminary analysis of prices of whole broilers on each Tuesday and Friday during a period of a year in a sample of stores in two North Carolina cities showed important differences by day of week, and over longer periods of time. In general, prices in affiliated stores averaged lowest throughout this year while the unaffiliated independents maintained the highest level. For stores of the same ownership types, the daily price range was smallest among chain outlets and largest for unaffiliated independents.

When prices were averaged over a period of a month, chain and affiliate prices tended to rise and fall with farm prices in North Carolina and prices paid by retailers in Atlanta. On the other hand, the wide fluctuations in retail prices between Tuesday and Friday in many of these stores were apparently unrelated to changes in prevailing farm and wholesale prices of fryers as shown by the Federal-State Market News Service. Owners of independent stores appeared to determine prices without much regard to current prices to producers or to those in other stores.

The use of "value added" for measuring output of manufacturing firms is well established but that technique has not been extended to include "service" organizations such as food distributors. To show the possibility for using value added to measure output in distribution, a study has been completed using Census and Internal Revenue Service sample data to measure output of food wholesaling and food retailing firms.

Measurements and comparisons are being made of wage costs of food marketing firms with those of nonfood firms. Wages of production workers in the food and kindred products industry have increased steadily since 1947. As an

example, in 1954 employees in the food and kindred products industry received an average of \$1.62 for an hour of work. In 1963 the average wage was \$2.30, an increase of 42 percent over 1954. Wages of production workers in the blast furnaces and steel mills industry increased from \$2.33 in 1954 to \$3.66 in 1963, an increase of 57 percent.

In most agricultural industries, the numbers of plants and companies have been declining in the postwar period. For example, the number of fluid milk plants has been declining for at least 75 years and most other types of dairy plants for 30 or 40 years. Technological and economic changes make it increasingly difficult for the small plant to compete with larger plants. In the livestock and poultry slaughter industries, however, the number of plants has been increasing. New poultry slaughter plants were built to handle the increased volume of broilers. The shift of livestock slaughter plants from terminal cities to interior points along with a shift from multi-product and multi-specie plants to specialized slaughter plants has helped to increase the number of plants.

During this same period, concentration--as measured by the market share of the four largest companies--has declined or remained steady in most of these industries. The proportion of Federally-inspected livestock slaughter accounted for by the four largest firms declined from 51 percent in 1950 to 35 percent in 1962. In this same period, concentration increased fairly rapidly in small fluid milk markets, changed very little in middle-size markets, and declined slightly in the largest markets.

A review of the number and size of mergers and acquisitions by retail grocery store companies during the 1959-64 period has been published. The findings compared the record of this period with that of the 1952-58. Acquisitions by retail grocery store companies in 1959-64 numbered about the same as during 1952-58. The period 1959-64 saw a marked increase in the number of acquisitions by the grocery store companies of nonfood establishments. Between 1952-58, only 4 percent were in nonfood industries, compared with 16 percent in 1959-64.

An analysis of the characteristics of discount food operations revealed that they have significantly higher average weekly sales, higher customer count and lower gross margins than conventional retail food stores. Both average sales per man-hour and per customer were greater for discount food operations studied. Labor costs as a percentage of sales were significantly lower for the discounter despite the fact they have more employees per store and paid the same wages as conventional food stores. Also, all other costs (other than labor cost) for the discounter were lower. Discounters had larger stores, more selling areas, and larger parking lots than conventional operators. Advertising costs as a percentage of sales were the same for discount and conventional chain food outlets. No significant difference was found between discount or conventional operators in purchasing practices for meats, groceries, and produce. For both types of operations direct purchasing

increased with sales volume. There appeared to be no major differences in income groups patronizing, but discounters generally drew customers from a larger geographic area than the conventional supermarket.

The nature of competition in the food industry is changing markedly. Chains and affiliated retailers are increasingly adopting private labels--their own brands--of products, where these were scarce only a few years ago. In a recent study in the Midwest, 58 percent of the chains had private label brands of fluid milk; 80 percent, ice cream and bulk natural cheese; 75 percent, butter; and 52 percent, nonfat dry milk. Usually the private label brands were priced below packer brands. Eighty-two percent of the stores priced private label half-gallons of fluid milk lower than processor brands.

Integration is increasing in the turkey industry. More turkeys are being produced under risk-sharing contracts, primarily with feed firms--about 25 percent of the total production--or firms producing turkeys on company-owned or leased farms--approximately 10 to 15 percent of output. Another 20 to 25 percent are produced with credit from banks and other financial institutions and about 45 percent are financed by credit from feed companies and other sources. These categories overlap and are not additive.

The procurement systems used by chains and other large-volume retailers for eggs illustrate the changes taking place in the marketing system. The most popular system is where the eggs move from producers to assembler-distributors directly to warehouses or individual stores of large-volume retailers. The typical system of the 1930's moved eggs through three or more handlers before they reached the retail store.

The base price quotation system has been in use in the egg industry for many years. The reason for its widespread use is that large-volume retailers and other buyers want to have a common denominator in negotiations with suppliers. The main area of negotiation is how much above the base price quotation will be paid for consumer-graded, cartoned eggs. Alternative pricing systems are relatively few and point in the direction of administered pricing in one form or another. The industry seems to prefer free market pricing with all of its shortcomings.

Direct purchasing of fresh fruits and vegetables by retail chains has affected the market for fresh produce. Approximately 26 percent of the total receipts of fresh produce in 52 markets in 1958 were direct purchases from shipping points by retail chains. An intensive study of the Philadelphia wholesale market has been conducted to determine whether the proportion of direct purchases increased from 1958 to 1964 and to appraise the effects of a new food center on the marketing channels and practices in a major wholesale market. Preliminary indications are that the number of wholesalers in Philadelphia decreased from 207 in 1958 to 160 in 1964.

Changes in wholesale marketing of fruits and vegetables have been accompanied by changes in shipping point markets. These changes have been studied in

the winter-vegetable producing areas of Florida, Texas, and California. Studies of marketing of vine ripened (or pink) tomatoes from Florida have shown that the grades for these tomatoes are inadequate in the view of many members of the wholesale trade.

Fruits and vegetables comprise 33 percent of the tonnage of agricultural commodities shipped out of California. About 30 percent of this tonnage was hauled by motor freight. New and improved packing methods for peaches and nectarines have been devised. The tight-fill pack promises savings, in packing, of 18-25 cents per Los Angeles lug equivalent.

Changes in methods of selling have raised questions of market performance and the equity of producer returns. Studies in the Rio Grande Valley of Texas indicate the market for tomatoes, citrus, and carrots behaves competitively and that chain stores pay prices comparable to other buyers.

A study of market power of lettuce buyers in California showed that findings were inconsistent with the hypothesis that large buyers exercise oligopsony power in the Salinas lettuce market. The three principal buyers accounted for a relatively small share of the total market. Furthermore, their purchasing patterns did not resemble those which could be expected in an oligopsony market.

To stimulate economic development in the South, producers and processors need information concerning the feasibility of establishing fruit and vegetable processing plants. With funds from the Area Redevelopment Administration, U.S. Department of Commerce, analyses of the economic feasibility of canning and freezing plants as an outlet for vegetables are being completed for northeastern North Carolina, southeastern Missouri, and western Montana.

The increasing importance of processing as an outlet for potatoes and the shifts in potato production areas have had impacts on the structure of the U.S. market for potatoes. A study of the structure of the Red River Valley potato industry disclosed that 852 firms stored some potatoes, but only 295 sold potatoes to customers outside the Valley. All other firms sold to or through the larger shippers. The market power of the large buyers--processors and chains--has led to questions of grower bargaining power.

A study of marketing orders for potatoes has disclosed that average prices received by growers in market order areas have increased relative to prices received in nonmarket order areas. This suggests that these orders are achieving their goal of increasing returns to producers.

In the opinion of tomato growers in Florida, Federal fruit and vegetable marketing orders would function more effectively if: (1) Committees were allowed greater flexibility; (2) provisions were available for controlling volume other than by grade and size; (3) membership was limited to those whose interests lie only in production; (4) violators were more quickly investigated and severely punished; and (5) advertising and promotion were permissible.

Among other developments in the floral industry, the number of retail florist shops increased approximately 3 percent from 1958 to 1963, and the value of sales increased 22 percent. The number of floral wholesalers also increased and sales rose from \$202 million to \$297 million.

Rapid changes have occurred in recent years in marketing sweeteners in the United States and in the apparent market power of various groups marketing sugar and other sweeteners. These changes include the increased use of noncaloric and corn sweeteners in the United States, the slowing of growth in the consumption of sugar, increased production of sugar in continental United States, and a worldwide shift from a shortage of sugar and high prices to a surplus and low prices. The net effect of these changes has been to weaken the market position of the domestic sugar industry and the importers of raw sugar. Information concerning the current status and potential position of noncalorics in the sweetener industry is being studied.

The tobacco auction warehouse system has remained relatively stable for a number of years. This institutional stability has made it difficult to minimize cost by planning the optimum size operation. An analysis of burley auction warehouses in Kentucky revealed wide variations in floor labor required per thousand pounds of tobacco sold. The tobacco auction system in Canada is able to handle tobacco for less than one-third of the costs of a typical auction warehouse in the United States.

Recent and significant changes in the structure, locations, and practices of the wool trade have resulted in considerable confusion among growers and marketing agencies. The growers and marketing agencies have little information to use as a guide in their efforts to meet changing market requirements. The suddenness and scope of these changes accentuated the need for an evaluation of the adequacy of the domestic wool marketing system. Pertinent 1964 data have been collected from more than 2,800 wool producers, 47 local pool operators and 38 warehousemen throughout the U.S. A preliminary report for each segment is being prepared. It has not been possible to include wool manufacturers in the study as was originally planned. The study is conducted in cooperation with the National Wool Marketing Corporation and the American Farm Bureau Federation.

B. Prices, Margins, and Costs

In the last decade, prices to consumers for most products of farm origin have risen despite downward trends in farm prices. This widening of farm-retail spreads has brought widespread public concern about the efficiency and performance of the marketing system which culminated in the establishment of a National Commission on Food Marketing.

The Division staff in recent months has answered an unusually large number of requests for information about changes in prices and spreads. In mid-1965, higher food prices were the principal force behind a rising consumer price index. Higher prices for livestock and some fruits and vegetables were responsible for most of the increase; the total farm-retail spread for a market basket of food products was generally unchanged.

In general, farm-retail spreads have widened because of the rising prices of labor and other items that marketing firms buy. However, it is increasingly evident that there is less correlation between short-run changes and farm-retail spreads for individual products and the actual costs of performing marketing services. This results from processing and retailing firms becoming more involved with a multiple-product price concept as these firms extend the number and variety of products and operations. As farmers become more specialized, farmers and their representatives have an increasing interest in prices, returns, and their share of the retail price for a single commodity. Conversely, the processor and especially the retailer have less interest in any single product and more interest in overall gross and net returns on an aggregate or total market basket of foods (often including many nonfarm products).

Special attention in recent months was focused on the price movements of beef, wheat, cotton, and some fresh fruits and vegetables. Research findings on price lags and the effect of retailers' policies on specialing proved especially helpful in explaining price movements for live cattle and beef. Questions on wheat and cotton centered on the impacts of proposed Government programs on prices to consumers. Reduced supplies of potatoes and lettuce in early 1965 brought sharply higher farm and retail prices.

Upward trends in farm-retail spreads have been slowed markedly by increasing efficiency in many sectors of the marketing system. Studies completed during the last year provided measurements of the increased efficiency in the output per man-hour for distributing farm food products. During 1929-58, net output per man-hour increased at a rate of 2.5 percent per year. This rate was higher than that for the private nonfarm economy and a little less than the rate for the total private economy. Labor requirements in food distribution increased during that period because net output expanded faster than output per man-hour.

Findings from another study estimated that income elasticities were 0.86 for food manufacturing services, 0.35 for farm food products manufactured, and 0.57 for manufactured foods. The demand for processing services has increased more than two times as fast as the demand for processed farm products.

Consumer expenditures for farm foods and the bill for marketing these foods were estimated by using the commodity flow method. This method made possible estimates for product groups and marketing agencies. Results permit comparison of changes in marketing bills for different product groups and marketing agencies. These data furnish an improved framework of reference for answering inquiries concerning the marketing bill.

The farm food market basket statistics were revised to make use of the latest data on consumer expenditures in weighting individual foods. Also, changes were made in the products in the market basket to reflect changes in consumer purchases during the last decade. Through the revision, a more accurate measure of the spread between retail and farm prices was obtained, providing a basis for better assessment of market performance. Studies are underway with industry groups to further improve price-spread series for beef, bread, and other products.

Potato prices at wholesale and shipping points increased considerably more than at retail. The 1964-65 season average wholesale price for Western Russets in Chicago was \$7.24 per cwt. compared with \$4.31 in 1963-65. The shipping point price was \$5.59 in 1964-65 compared with \$2.56 the preceding season. This means that the grower-packer share increased by \$3.03 per cwt. from 1963-64 to 1964-65, which was more than the increase in retail price. Consequently, the retail spread decreased \$0.75 and the shipping point wholesale spread decreased \$0.10. The producers have benefited relatively more from the price increases than have marketing agents.

The farmer's share of the consumer's cigarette dollars has been declining since 1947. In 1964 the farmer's share for cigarettes was 9 percent compared with 14 percent in 1947. This decline is attributed mainly to a decrease in the per unit tobacco requirements and a failure of farm prices to rise in proportion to the rise in marketing charges and taxes. The lower tobacco requirements are due to the increased popularity of filter-tip cigarettes and advanced technology in the manufacturing segment of the industry. Technological advances have not been confined to the manufacture of cigarettes. Cigar manufacturers have obtained some labor reductions in the manufacturing process with the development of homogenized binders and the shift to short-filler cigars. The number of cigar machine operators decreased by 43 percent from 1955 to 1961, while cigar production increased by about 15 percent.

Information on marketing costs and spreads for cotton, manmade fibers, and textile products is needed as a basis for appraising the competitive position of U.S. cotton, and to indicate possibilities for increasing market efficiency. An analysis of changes in the marketing system for cotton and cotton textile products indicates that markets for U.S. cotton continue to be adversely affected by strong competition from manmade fibers. However, technological developments, changes in market structure, and adoption of improved marketing practices have resulted in lower charges for some marketing services. For example, charges for saw ginning and wrapping a 500-pound gross weight bale of upland cotton in the United States average \$16.78 for the 1964-65 season, a slight decline from the previous season. Charges made by public cotton warehouses averaged 74 cents per bale for receiving and 52 cents per bale per month for insured storage in 1964-65, about the same as in the previous season. Although some charges declined, the spread between average retail costs of cotton products and the average farm value of lint used in their manufacture was \$1.87 in 1964, only 1 cent less than the record spread in 1961. The average retail price for cotton products was \$2.18 in 1964, 1

cent below the all-time high in 1961. The 1964 farm value of lint cotton used for making these products averaged 31 cents, 1 and 2 cents below comparable averages for 1963 and 1962, respectively. The farmer's share of the consumer's cotton dollar averaged 14 percent in 1964, compared to 15 percent in the two preceding seasons and to the high of 18 percent in 1951 and 1952.

Trends in marketing spreads for grain and grain products were mixed during 1964-65 while the farm value of these commodities remained largely unchanged from the level of the past several years. The retail price of a 1-pound loaf of white bread increased during the second half of 1964 from 20.6 to 21 cents; during the first half of 1965 it fluctuated from 20.9 to 21 cents. The wholesaler-baker spread continued to account for more than one-half the retail bread price and averaged 11.4 cents a loaf in 1963 and 1964. Increases in wages, salaries, and fringe benefits, which now account for more than half of the wholesaler-baker spread, were partially offset by lower packaging and wrapping costs.

Dry cereal prices have increased steadily while costs of corn and other raw materials remained virtually unchanged. The retail price of a 12-ounce package of corn flakes increased from 16.9 cents in 1947-49 to 28.6 cents in 1964 and to 28.9 cents in recent months. The farm value was 2.5 cents in 1964, compared with 2.6 cents in 1963 and an average of 2.7 cents during 1947-49.

A major shift in the utilization, prices, and spreads of various fats and oils in recent years has created problems for producers and agencies assembling, processing, and distributing those products. The farmer's share has decreased while the farmer-wholesaler, and farmer-retailer spreads both have increased. The farmer's share of the shortening dollar decreased from 51 percent in 1947 to 33 percent in 1964. During the same period the farmer-wholesaler spread increased from 38 to 52 percent and the wholesale-retail spread from 10 to 15 percent. For margarine, the farmer's share of the retail price has decreased from 36 percent in 1947 to 28 percent in 1964, the farmer-wholesaler spread increased from 55 to 75 percent and the wholesale-retail spread doubled, from 9 to 18 percent. Trends in spreads for cooked salad dressing are somewhat different. The farmer's share has decreased from 30 percent in 1947 to 17 percent in 1964, and the farmer-wholesaler spread also has decreased, from 59 to 57 percent. The wholesale-retail spread has increased from 11 to 26 percent during this period. In cooperation with the National Commission on Food Marketing, sources of improved price data for fats and oils are being explored.

Thus, much of the rise in retail prices of fiber, grain, and oilseed products can be attributed to increased costs of processing and distribution. Research is needed to determine the magnitude of these changes and to find means of processing and distributing these products more economically.

Higher sugar prices in 1963 and early 1964 increased growers' returns moderately. While sugar prices during the first half of 1965 have been below the levels reached in 1963 and early 1964, they are about one-half cent per pound above the 1962 average. This indicates that growers' returns for their 1965 crop may be slightly below the level of the last two years.

Relatively high prices for industrial molasses, especially in 1963 and early 1964, caused significant changes in utilization. Since World War II petroleum gases have replaced molasses as the major raw material in the production of industrial alcohol. Molasses in each of its major uses is subject to effective competition from alternate raw materials. In livestock feed other materials such as milo, corn, and bran may be substituted for molasses. Dextrose has recently been substituted for molasses in the production of citric acid by a major producer.

By establishing the prices shellers pay for the various kernel grades of farmers' stock peanuts, the peanut price support program can influence sheller decisions as to the quality of farmers' stock peanuts to market through commercial trade channels. A mathematical programming simulation model of the peanut shelling industry has been developed to estimate the total quantities and qualities of farmers' stock peanuts that would be demanded by the commercial shelling industry under various assumed farmers' stock price relationships. The model is being applied to Virginia-type peanuts, and coefficients for the Spanish and Runner peanut analyses are being developed.

The interrelationships between market organization and market efficiency are seen in a study of efficiency in managing the total milk supply in fluid milk markets. In one case, a central producer's cooperative could supply milk to the Pittsburgh handlers at a lower cost and with less reserve milk than would be needed if each handler were securing his milk directly from producers. A central source could provide a uniform weekly supply with only 60 percent as much reserve as that needed by individual handlers.

The operating efficiency of a firm can be increased markedly by providing better information to its management and thus contribute to greater efficiency in the operation of the entire marketing system. Case studies in fluid milk operations indicated that with no increase in the accounting staff, substantial amounts of added information could be provided to management. In the case studies, costs declined and profits increased during the study period, indicating that additional information can be used by management to improve operations. Detailed analysis of the profitability of individual milk routes indicated that there is more earnings potential in focusing attention on several variables which contribute to route performance than in attempting only to control earnings.

Operating costs for 70 firms distributing fresh milk increased to \$4.71 per 100 pounds of milk and cream processed in 1964 (average for first half of year) from \$4.35 in 1954. Two-thirds of this increase resulted from rises in salaries, wages, and commissions--costs accounting for about half of the total operating costs for each year. Several other expense items, however, increased by a larger percentage than payroll cost. Raw material costs of these firms decreased to \$5.79 per 100 pounds of milk and cream processed in 1964 from \$5.90 in 1954, partially offsetting the increase in operating costs. Cost increased more than receipts, however, so net profits declined from 44 cents to 26 cents per 100 pounds of milk and cream processed.

The cost of assembling live turkey increases as firm size increases, and decreases as the production density increases. Costs for a small firm range from .2 cents per pound for high density to about .35 cents per pound for low density. Costs of a firm handling 70 million pounds range from .25 cents per pound for high density to .5 cents per pound for low density. Most of the economies of scale in turkey poult hatcheries are realized when a hatchery sets about 5 million eggs per year. In feed mills, the cost per ton of feed in large mills is about half that of small mills. Substantial economies of scale exist in the manufacturing of further processed poultry products.

Studies of the characteristics of demand for mature green vine-ripened, and greenhouse tomatoes have revealed important implications for producers and marketing firms. Substitution relationships among these products apparently are not of sufficient intensity for any one of the three types of tomatoes to fully and effectively replace the other two.

Studies in Michigan have estimated costs of packing fresh apples and canning red-tart cherries. Under optimum model conditions, apple packing costs would be approximately \$8,000 less per packinghouse than the average under existing methods and scale of operation.

Increasing volumes of roughly harvested seed cotton have necessitated larger investments in gin cleaning equipment in all areas of the Cotton Belt. The resulting increases in fixed costs along with rising costs for power and labor have tended to increase ginning costs. Several phases of research were completed this past year which provide ginners additional information on feasible means for increasing their efficiency. This research shows that ginners in the West and Southwest could save 11 cents a bale in power costs by improving the power factor level in their plants. More efficient use of labor could reduce the cost of some ginners by as much as 2 to 5

percent. Prospects for decreasing costs by storing seed cotton at gins, and hence increasing seasonal volume, appear limited because of the added investments and increased needs for power and labor. Research on power requirements and costs for high capacity gins, specification for model gins and ginning organizations, and on improved means for reclaiming gin loss cotton are nearing completion.

Rising costs at cotton warehouses and large stocks of Government-owned cotton emphasize the importance for information on cost of receiving, storing, compressing, and outhandling of cotton at public warehouses. Administrative reports requested by the Agricultural Stabilization and Conservation Service on costs of nonstorage services have been completed for warehouses in the Delta and Texas High Plains producing regions, and for Texas port warehouses.

The cost of price support programs for grains is materially affected by the handling and storage rates paid by the U.S. Department of Agriculture. Although rates paid by the Department are periodically reviewed, negotiated and adjusted in an attempt to reflect changing cost structures, rates paid by the Commodity Credit Corporation have been fixed without precise and definite information as to actual costs of providing these services. Two administrative reports have been submitted to the Agricultural Stabilization and Conservation Service regarding the cost of handling grains in commercial elevators. Cost comparisons were made by mode of transportation, type of plant and kind of grains handled. Work is continuing and will include costs for storage as well as handling, taking into account regional differences, capacities utilized, grains stored, transportation costs and type of construction. Administrative reports will be prepared and submitted to the Agricultural Stabilization and Conservation Service. A study conducted under contract by Montana State University showed that elevators in the spring wheat area, geared to World War II marketing patterns, were forced to expand rapidly after the War due to a shortened harvest period and increased production. Five elevator models were developed and the cost of handling grain ranged from 0.037 cent per bushel for those with an annual volume of 1.75 million bushels to 0.109 cent for those which handled only 75,000 bushels. One report gives fixed and variable cost including those for nongrain activities. A second report projects elevator numbers, sizes, locations, and functions to 1980.

Grain banks have become an integral part of the mixed feeds industry in the Midwest with potential savings for both the farmer and the feed mill. It is estimated that use of grain banks can increase output of a typical plant by 75 percent without additional labor. Expansion and use of grain banking has been encouraged by the development of mechanical bulk handling equipment at the farm and the plant. Costs and charges for grain banks varied widely, but the average cost of processing feed was \$8.95 per ton. Another important change taking place has been in the actual manufacturing operation. Companies have decentralized production facilities. Smaller and more efficient facilities have been established in consumption areas. A series

of surveys has been conducted in recent years in an attempt to provide management with economic engineering model data on labor and capital requirements. The most recent study on processing ingredients points out that this is basically a machine operation and that a minimum amount of labor is required once the grinding, crimping, or corncracking equipment has been started. A small model processing 45 tons of ingredients per 8-hour day would require 0.07 man-hour per ton while a larger model processing 120 tons a day would require only 0.03 man-hour per ton. Operating costs per ton for the small model are 40 percent greater than the costs for larger models. Data from all surveys are being compiled into a general report which will analyze costs for the entire manufacturing operation with varying degrees of product specialization.

Operating practices and labor utilization in rice mills were studied. Results indicate that if the rice milling industry were to use the most efficient methods observed and attain the labor work standards described, there is a potential production labor savings of about 50 percent. Such a saving means nearly 10 cents per 100 pounds of rough rice milled or some \$7 million annually.

It is becoming increasingly evident that grade and staple length do not provide a satisfactory basis for selecting, processing, and pricing cotton. Deficiencies in pricing cotton are adversely affecting its quality and competitive position in the textile industry. Research results substantiate the desires of the cotton trade and the feasibility for establishing useful price differentials for fiber fineness and possibly for other fiber properties. Official price quotations, based on grade and staple length, in most of the designated spot markets frequently differ from prices actually paid for individual lots at a particular time. This indicates that for some sales the trade is pricing cotton on the basis of other quality characteristics than grade and staple length. For more effective pricing, greater attention must be given to length, length uniformity, strength, and other properties affecting the manufacturing performance of raw cotton, and the end-use value of manufactured products. Defoliation and excessive gin drying have been found to be particularly detrimental to some of these fiber properties.

One of the fundamental weaknesses of the present system of marketing domestic wool is the lack of adequate classification and market information services. Research was designed to determine the effects of a wool classification and market information service on prices and to study providing such a service. Results indicate that a wool classification service would generally increase prices to producers of higher quality wool, reduce prices to those of lower quality, but would not significantly affect the national average price. Some practical difficulties would need to be overcome before a classification service would be feasible. Another phase of the analysis indicates a need for improving the relationship between central market quotations and local prices in the Western States. Results suggest that to the extent wools in particular areas tend to be similar, reporting central market quotations more specifically for these areas will assist in compensating

for quality factors being considered by local buyers in addition to fiber fineness and staple length. Average market differences ranged from 6 cents below Boston quotations in North and South Dakota to 10.5 cents above in eastern New Mexico. Additional sources of information should be developed to better relate price quotations to local market conditions. Utilization of USDA's Consumer and Marketing Service livestock reporters for this purpose was tested and appears feasible. This study was conducted in cooperation with the New Mexico State University and the Consumer and Marketing Service.

Present hay grades do not reflect all the quality attributes important in pricing, and trading is disorganized. Data on selected alfalfa hay quality factors were obtained at various levels of marketing in Arizona, California, Nevada, and Oregon. Based on these data, experimental grades were developed along with the approximate cost of applying these grades to individual lots of hay. In addition, the experimental grades were market tested to determine their acceptability.

C. Location and Interregional Competition

As farm production shifts from one area to another, marketing firms must adjust to the new environment. New firms may be called for in one area while those in other areas must seek other opportunities. Changing transportation rates put one area at a competitive disadvantage compared to others both in production and marketing. Marketing economic studies emphasize the changes taking place and the scope of adjustments needed to meet them.

The grain marketing system is currently faced with problems of substantial change. Rapid increases in volumes of whole grain flowing through the gulf ports for export have resulted in construction of new terminal elevator facilities near production areas. Other facilities are proposed. The flour milling industry is in the process of relocating away from the production areas because of changes in transportation rates causing changes throughout the grain markets including millfeed users.

Research on the location and performance of the whole grain industry in the Northeast, conducted in cooperation with the Maryland Agricultural Experiment Station, has been completed and a report published. Comparable studies are underway in the rest of the United States including one under contract with Oklahoma State University. When these studies are completed, data will be available to evaluate present and probable interregional competition in the U.S. grain markets. Results to date indicate increasing off-farm sales, decreasing numbers of grain merchandisers and processors, shifts in the spatial location of facilities, increasing integration, and increasing exports. Current industry problems appear to be centered largely around transportation methods and rates.

In the Northeast, for which data are complete, there are few strictly regional grain interests. Except for volumes moving through integrated establishments

with grain interests outside the region, the volume of grain moving into the Northeast has declined sharply. The number of establishments which have gone out of business was as high as 20 percent in some segments of the industry and a preponderance of these were independent nonintegrated establishments.

Rail transportation of grains shipped by country elevators in the north central region decreased relatively by more than 10 percent in a 5-year period ending in 1963. Barge and truck shares increased accordingly. These shifts led to rate reductions by railroads in attempts to regain traffic. Such changes already have caused some adjustments in the location of storage and milling operations, and may well cause many more in the near future.

The pattern of shifting grain transportation from rail to truck also occurred in the Northwestern States. It was found that considerable shipments now bypass country elevators, moving directly from farms to terminal markets. This type of movement results in a change of market structure and the nature of competition in the markets in which farmers sell grain. The shift from rail to truck transportation was due to changes in relative rates rather than changes in service factors associated with the different modes of transport.

Transportation of other exempt commodities also has been shifting from rail to truck. Between 1955 and 1963, the share of total fruit and vegetable traffic from California carried by trucks increased from 19 to 34 percent. Much of the truck transportation was for relatively short hauls. The balance between the number of incoming and outgoing loaded trucks from California varied among different regions considerably, thereby resulting in different costs of truck transportation between the different regions and California points.

Part of the growth which has occurred in truck transportation of exempt agricultural commodities is a result of growth in the number and size of private carriers. These carriers may haul their own goods and exempt agricultural commodities free of regulation of rates charged, routes served, and other matters by the Interstate Commerce Commission. Results of a study showed that more than half of the mileage of 701 private carriers was devoted to hauling exempt commodities, and that about 80 percent of this movement was toward the carriers' terminal. The data suggest that backhaul opportunities in exempt commodities are exercised consistently by private carriers.

A study of the performance of unregulated agricultural trucking found that utilization of capacity in the exempt sector compares favorably with that in the regulated sector. Further, findings suggest that unregulated agricultural trucking has not suffered unduly from excessive competition. Entry and exit was still fluid. Although exempt rates were found to be lower than regulated rates, the exempt rates were sufficient to cover relevant costs of transportation services supplied to agriculture.

Food and feed grain exporters must be careful in timing their demands for shipping, according to an analysis of trampship charter rates for the period 1961-1965. These rates fluctuate widely, and these fluctuations seemed to respond to causes outside the grain trade. The study also noted that trampship rates are considerably affected by country of registry, with U.S. flag vessels having rates well above their foreign registry counterpart vessels.

The organization and operation of markets for bulk milk that moves long distances tend to be loosely coordinated. A study of the buyers and sellers indicated that much of the business is on a spot or seasonal basis with individual firms making decisions on each purchase. Only about one-fourth of the buyers interviewed bought milk from outside sources on a regular basis. Most buyers indicated that a shortage of local supplies was the reason for purchasing outside milk and they preferred the flexibility afforded by outside purchasing. Because of the conditions under which such supplies were needed, purchases were made by shopping around among known sellers of "spot" milk.

Price information on dressed beef available to users in the South reflects prices from nonsouthern markets and does not appear to be adequate for decision making by meat-handling and livestock-producing firms. Packers, retailers, and jobbers in Texas and Oklahoma indicated a fairly strong preference for a dressed meat price reporting service in the Southwest which would reflect supply and demand conditions on heavier beef in Texas and Oklahoma and which would provide price information on lighter type beef carcasses, which is not now available from any source.

The competitive position of the asparagus and tomato canning industries in California is being developed from studies of current plant operations. Production, processing, and distribution costs will be evaluated in other major processing areas to complete the analysis of the competitive position in canning asparagus and tomatoes in California.

Increased production of beet sugar, primarily in the West, relative to total sugar consumption in the United States has caused shifts in the proportion of beet sugar marketed in various areas and in price relationships among various marketing territories. The increase in transportation cost because of shipments for longer distances has reduced the average net returns per unit somewhat below what otherwise would have been expected.

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AREA II

DEVELOPMENT OF MARKETS

Problem: Of increasing economic concern is the problem of how to improve and strengthen markets for farm products in face of a continuing rise in production, higher distribution costs, and competition from non-agricultural products. The problem of increasing demand for farm products to meet rising productivity has become progressively more pronounced in the last decade. Interest in the development of markets has mounted as larger and larger financial outlays become necessary for price-support operation and maintenance of reasonable levels of farm income.

Farmers themselves have become immersed in market development. They have banded together in different types of organizations to perform marketing functions and increase their bargaining power. Farmers are spending at an all-time high for advertising, promotion, and merchandising, seeking to expand sales of farm commodities.

Federal, State, and local Governments have taken a positive approach to the problem of market development, establishing specialized outlets and providing financial assistance to fill special food requirements of children and needy persons. Public food programs serve to link the availability of food and the requirements of certain groups which are outside of regular markets.

Also, the problem of developing markets has involved the finding of new and improved uses for agricultural products that meet with consumer acceptance and/or industrial requirements.

Research in the development of markets is designed to determine how best to maximize the use of farm products, keeping in mind consumer desires and returns to producers. This involves economic studies of: The effectiveness of alternative promotion, merchandising, and advertising techniques; evaluation of current and proposed food distribution programs; use of food at home and away from home; and market potential and commercial feasibility of new and improved products.

Through research on the different facets of market development, information is provided farm groups, processors, and distributors which enables them to make the most of new market outlets and opportunities. In addition, they are better able to assess the demand of consumers from the standpoint of kinds and forms of food and services deemed most satisfactory.

USDA AND COOPERATIVE PROGRAMS

The Department has a continuing long-term program of economic research on the development of markets. It consists of both basic and applied research on agricultural commodities which includes the development of general principles in advertising and promotion, appraisal of public food distribution programs, and evaluation of the commercial feasibility and market potential for new and improved products.

Much of the research on the development of markets is carried out in cooperation with producer groups, trade associations, and State Departments of Agriculture. Financial contributions to the research effort are often made by cooperating groups.

The Department's research program on the development of markets is centered in Washington, D.C., with a small number of field stations located throughout the States. Also, economists are located at each of the four USDA utilization research and development laboratories.

The scientific effort devoted to the development of markets in the past year amounted to about 28 professional man-years. By functional subareas, the man-years were divided as follows: Products and services, 16; merchandising and promotion, 9; and, distribution programs and market outlets, 3.

PROGRAM OF STATE EXPERIMENT STATIONS

A. Products and Services

Very little, if any, research in economics is carried out in the area of products and services by State agricultural experiment station personnel. Much research is being conducted on the development of improved products and uses, but it is in the area of technology.

B. Merchandising and Promotion

Research at State agricultural experiment stations in the area of merchandising and promotion is problem oriented although conducted on specific commodities.

Six stations have projects on poultry and poultry products. Two are intensive studies of product development and market evaluation of new products from eggs and poultry meat. One is an analysis of the effects of various methods of processing, packaging, merchandising, consumer education and advertising on sales. Another is aimed at developing markets and merchandising practices for inedible byproducts of the poultry industry.

Specific commodity studies include: Conditions and practices affecting marketing costs and consumer acceptance of heavy young chickens; potential effects of new and improved methods of merchandising turkey meat upon purchases by consumers; and effect of labeling and providing information on nutrition of eggs on the price structure and its relation to quality market grades. A total of 7.3 professional man-years at the State experiment stations is allotted to this research dealing with merchandising and promotion.

Dairy merchandising studies underway at the experiment stations are designed to discover and test methods and techniques which may increase the sale of dairy products and increase the efficiency of their distribution. Another project analyzes past and present utilization patterns for milk and dairy products and determines the effects of factors influencing these patterns. The stations' efforts devoted to this area of research amount to .5 professional man-year.

Twelve stations have projects on horticultural specialties. Nine projects are contributions to two regional studies, NEM-18 and SM-25. Seven are in the Northeast and are concerned with procurement and distribution practices of retailers, trends in consumer use of marketing services, effects of methods of disseminating information on plant material selection, and use on sales. Two in the southern region analyze responses to and preferences for practices relating to packaging, handling, storing, and merchandising selected horticultural specialties. A Delaware study describes practices and characteristics of retail nurseries.

Three studies, two of which are contributions to a regional project, SM-25, are directed at floricultural products. They emphasize merchandising practices in selling flowers through nonflorist outlets, and consumer preferences and behavior relative to purchases of flowers in various containers, varietal and color combinations, types of display, and atmospheric conditions for storage. One study investigates the effectiveness of methods used by retail flower shops to increase sales.

Ten professional man-years are used at the State experiment stations for horticultural specialties research related to merchandising and promotion, with 6.8 on ornamentals and 3.2 on flowers.

Studies of consumer acceptance, preference and product evaluation in home use situations represent an ongoing phase of the State program. Current work deals with food and fiber items as well as nursery products. This research is undertaken to determine specific unknown wants of consumers and thus is closely allied with the product development phases of the station's program. In the year reported, research was underway at 16 stations and totaled 27.5 professional man-years.

Research on consumer motivation and decision making is underway at 18 State stations. These studies are concerned with type and extent of influence

resulting from food promotion and consumer information programs, with factors affecting food purchase decisions, and with consumer behavior in the market place. This phase totals 22.4 professional man-years.

Limited investigations are concerned with the market opportunities of selected products, such as those requiring special handling and consumer response; influence of merchandising techniques and services offered at retail levels upon consumer demand, including continued patronage of independent stores; development and training of managers for retail and wholesale food industries; and economic evaluation of selected merchandising methods, including their impact on sales and continued patronage. A total of 6.4 professional man-years was devoted to these studies.

C. Distribution Programs and Market Outlets

Only a very limited amount of work is underway on distribution programs and market outlets at State agricultural experiment stations. The problems involved are for the most part national in scope and thus become a research area largely the concern of the U.S. Department of Agriculture.

One station is analyzing and evaluating the impacts of existing parity price formulas as a basis for developing more accurate alternative parity price and income formulas. A total of 0.2 professional man-year at State experiment stations is assigned to tobacco research on distribution programs and market outlets.

Two projects are underway at the experiment stations concerning the milk and school lunch programs. One deals with the pricing and transfer of milk quotas and the other with the effects of school lunch programs, surplus disposal programs, and Federal order markets on milk and dairy products' consumption. Research effort devoted to this work amounts to 1.2 professional man-years.

PROGRESS--USDA AND COOPERATIVE PROGRAMS

A. Products and Services

Emphasis is being placed in the current program on ways of maintaining agricultural products' shares of the market--particularly where declines in per-person consumption has occurred. In specific commodity areas, this requires a reliable means of identifying the salient consumer wants or needs and then providing researchers with the information so they can channel the research and development programs to maximize product success and consumer satisfaction. Research of this nature has been undertaken in several important commodity areas.

Changes in consumers' purchasing habits combined with competition from other products are significant factors behind a general downward pattern in per-capita consumption of fluid milk products during the past decade. This

decline coupled with increased farm output of fluid milk has created serious problems for the entire dairy industry.

Work is being done on low-fat (2 percent) milk, modified milk (improved flavor through increased total solids), and on sterile milk concentrates. The research is based on the proposition that if the optimum dairy product beverage mix can be determined to meet the continuing changing needs of consumers triggered by health, dietary, and related factors, such a determination should maximize consumption and perhaps halt the decline in milk consumption. The low-fat milk study indicated that this product brings some new users of fluid milk into the market place. However, total fluid milk sales do not appear to be measurably increased by sales of this product. The product has been chiefly responsible for offsetting the sharp drop in fluid whole milk consumption.

Serious problems of a similar nature currently confront the hides and leather industry. The problem is not only of better meeting market requirements but the competition of synthetic leather. We are studying the economics of modifying hide trims so as to better meet competition by providing shoemakers with hide leather products which most closely meet their raw material needs. Theoretically, removal of less desirable portions of a hide would provide a more uniform product of higher quality and enable hides to compete more favorably with substitutes. Findings indicate that the removal of bellies and heads from a hide (30 percent) at the packinghouse, prior to curing, improves the quality of leather and increases economic returns for all segments of the industry. An analysis also was made to determine economic possibilities for using such hide trim. One possibility indicates that fresh hide trimmings have a value of about 2 cents a pound if converted into edible collagen (sausage casings) or rendered into feed and oil by a new process. Currently, packers lose about 2 cents a pound on hide trim. Export markets were also considered for possible new marketing opportunities.

Another special area receiving increased emphasis is cereal grains and fibers. The need for market potentials research is vital because fiber and grain products are especially vulnerable to market substitution. The emphasis in recent years has been to depict the precise nature of the technical and economic competition facing these agricultural materials so as to provide guidelines on the cost-price relationship and performance characteristics that are needed to resist further market erosion. For cereal grains, the emphasis has been on researching starches. The efficient utilization of starch, the major component of cereal grains, is the key to expanded use of cereal products. Work also began on market potentials for frozen doughs and batters for household use, as well as for point-of-sale defrosting and bake-off. This study is an outgrowth of USDA's previous research on freezing practices in the baking industry. The new study will explore a growing new industry which uses freezing for unbaked dough and batter. This practice may have potential for increasing consumption and lowering prices to consumers for bread.

On the fiber side, the research approach also includes evaluation of the sales potential of new properties as putting stretch in cotton and eliminating shrink from wool. A study completed in the past year pointed out that machine launderability given to wool fabrics will enhance wool consumption in markets that consumed 131 million pounds of wool, a market now subject to substitution by easy-care synthetics. Similarly, research in the planning stage on cotton will explore the extent to which new cotton finishes and cotton products have expanded particular markets for cotton and how well these new developments are meeting new market requirements.

In addition to specific studies of new product potentials, market potential research includes studies of a broader and more basic nature. Such research is based on the premise that successful physical research on agricultural products has to be built on a solid foundation of objective market requirement so that products of agricultural origin can survive in the years ahead. These studies of a broad cross-commodity nature seek to determine in specific terms whether agricultural commodities are meeting market needs and if not, what research can be done to meet these needs. Additional research goals for these broad studies are to: (1) Provide market intelligence to pinpoint opportunities for physical research; and (2) depict the economic environment and conditions that these research developments will have to meet for survival. An example of work in this area is the recently initiated research contract with Battelle Memorial Institute for a study of the dehydrated food processing industry. This study will provide comprehensive data on the market penetration of various forms of dehydrated foods, relative costs of processing by various methods of dehydration, and an assessment of how the present and newer technologies of dehydration affect agricultural production patterns.

Another example of work in this area is the new crops work. This research is concerned with the development of agricultural raw materials that are not presently available for food and industrial uses. Developments in this area could provide farmers with additional sources of farm income and alternative uses for crop lands.

The importance of innovation in the economy in terms of economic growth is obvious. However, the high rate of new product failures adding to marketing costs, which result in increased prices to consumers or decreased prices to farmers, stresses the need for reliable indicators of new product success. A first step in this direction has been taken by market potential researchers who have recently measured some of the factors associated with sales of convenience foods. Results of this research provide an equation which may be of use in predicting success of new products. Another aspect of minimizing new product failures has been the use of the microtesting or small-scale intensive approach in "as early as possible" stage in the development of new food products in the Department's utilization laboratories. Developmental work of this nature has been carried on in the past reporting year on dehydrated pumpkin powder, frozen avocado salad (guacamole), and spray dried whole milk powder.

Market testing of new products has resulted in an increasing number of requests from various groups for consultation and cooperative research projects. In addition, there has been a growing number of land-grant universities where food science departments have expanded without commensurate expansion of marketing research services within the university. Because of this, particular emphasis in recent years has been to strengthen working relations with these institutions by means of consultation and cooperative projects. Cooperative work is underway now with Pennsylvania State University (market potentials for maple sirup and maple sirup products), the University of Hawaii (market possibilities for Hawaii farm products), Clemson University (acceptance of modified beverage milk in Southeastern States), and the University of Wisconsin (an evaluation of selected segments of the institutional market for sterilized milk concentrate).

Continuing emphasis is being placed on oilseeds, particularly the soybean in view of the successful work accomplished on the project relating to the use of whole soybeans for feed in making mixed feeds. Information was developed for farmers, livestock and poultry feeders, and feed mill operators so as to allow them to make a decision as to whether or not processing of soybeans in this way was economically feasible under local conditions. Work is being initiated on the market for safflower oil and meal. This research will tie in closely with the physical research program on safflower oil carried on at the Western laboratory.

B. Merchandising and Promotion

The current program of research in merchandising and promotion develops and provides information which enables producers and marketers to be more responsive to changes in demand and to undertake merchandising and promotion which will be most effective in maintaining or expanding demand for agricultural commodities. Major emphasis is placed on evaluation of the promotion and merchandising potential for commodities and the development of general principles applicable to this area of marketing activity.

Work is nearing completion on two studies relating response in sales of agricultural products to changes in promotional investments and the effectiveness of promotion relative to producer returns. Analysis of frozen concentrated orange juice sales showed that an increase of 13 percent in consumer purchases resulted from Florida's special promotional campaign of 1959. This shift in demand continued through 1962. Estimated returns to the citrus industry were over three times as great as the increase in promotional investment. Other findings show that a change at retail of 1 cent per 6-oz. can of frozen concentrated orange juice is accompanied by a corresponding change of 25 to 30 cents in the per box prices received by producers. On this basis, Florida producers benefited about 50 cents per box (season average price) from the shift in the demand accompanying the special campaign of 1959.

A similar study of the relative sales response of fluid milk to three levels of promotional investment--normal promotion expenditures of about 5 cents per capita invested annually, normal plus 15 cents per capita annually and normal plus 30 cents per capita annually--shows that significant increases in Class I milk sales of 4.5 and 5.9 percent were attributable to the 15- and 30-cent levels of intensified promotion, respectively. Based on the differential between prices received by producers for Class I and Class II milk, returns to producers of 59.4 percent on the added investment of 15 cents per capita and 13.5 percent on the added investment of 30 cents were shown. Of the levels tested, the investment of 15 cents per capita above normal gave maximum benefits. This study was conducted in cooperation with the American Dairy Association.

Because of the increased emphasis on promotion as a means of maintaining or expanding demand for farm products, a workshop on development and promotion was conducted during June 1965. The workshop, a cooperative effort of the Department, the Western Agricultural Economics Research Council, and the Giannini Foundation, was attended by representatives of commodity promotional groups, State Departments of Agriculture, land grant colleges, advertising agencies, and other organizations interested in or participating in the promotion of farm products. It provided an exchange of information on current promotional activities, viewpoints of the advertising agency and client, an examination of the role and contribution of promotion in marketing farm products, and a look at research needs and opportunities in this area of marketing.

Analysis of consumer purchases of selected agricultural products is carried out on a continuous basis. Findings provide farm organizations and marketing firms information which aid in formulating current marketing policies and programs including the allocation of production between uses and markets and in evaluating advertising and merchandising inputs. During the 1964-65 citrus season, use of frozen concentrated orange juice and the proportion of families buying it remained below 1962 prefreeze levels despite heavier supplies. Use of noncitrus juices and canned and frozen fruit drinks were down from the 1963-64 season. Consumer outlays for frozen concentrated orange juice and canned orange juice remained below prefreeze levels. However, expenditures for chilled orange juice reached a new high.

In addition to the development of consumer profiles for commodities, studies are being conducted to delineate channels of distribution and availability and appraise current merchandising and promotion practices for farm products. Results of these studies identify problem areas in the distribution system and provide benchmark data for formulating market development and promotion programs by farm groups and marketing firms. Weak and strong areas of distribution are identified as are specific problems hindering distribution and availability in the weak areas. The importance of direct action by organized farm groups in marketing their product is revealed in the results of recently completed research on the promotional activities and practices of farm groups. This study showed that approximately 1,500 farms groups

were engaged in conducting market development and sales promotional programs in 1963. These groups spent an estimated \$92 million on domestic programs, and an additional \$5.6 million on foreign market development activities. This is a relatively new field for many groups and they have limited guidelines for planning a promotion program for evaluating its effectiveness.

A floral research study indicates that there are about 22,000 retail florists in the U.S. It is estimated that retail sales of floral products exceed \$1 billion and farm value is around \$300 million annually. Thus, floricultural products in terms of farm value equal or exceed other major crops such as apples and tomatoes. Over two-thirds of the Nation's retail florists have annual sales of less than \$50 thousand. About three-fourths of retail floral sales are by telephone. Florists' credit policies are extremely liberal. Nearly three-fourths of all florists advertise in paid media, sometimes during a year, but advertising is concentrated around holidays and special occasions. Less than 40 percent of all florists display prepared arrangements to assist customers in purchasing. Very few shops offer perishables on a self-service basis. Florists have had very limited experience in operating shops or concessions as a part of a mass market retailing operation. About 7 percent of florists' sales are in artificial flowers.

Analyses of demand for floral products as indicated by wire order sales show that annual change in number of wire order sales is closely associated with selected economic and demographic factors. Disposable personal income was the single most important indicator of flowers-by-wire sales in the U.S. Changes in disposable personal income, personal savings, deaths and employment level together were associated with 99 percent of the year-to-year variations in U.S. wire order sales by Floral Telegraph Delivery Association members. This relationship provides the industry with a basis for sales planning as well as an evaluation of specific merchandising and promotional policies.

Analysis of historical data and data generated through controlled experiments is used to test the sales effectiveness of specific retail merchandising practices (in self-service retail outlets) such as methods of display, pricing policies, consumer packages (types, size, color, etc.) point-of-purchase information, the impact of retailer featuring, and product identification. Findings of recent studies reveal that sales of broilers are associated with amount of retailer advertising, display space devoted to the product, and the addition of other methods of offering "cut-up" broilers. Quantification of these relationships permits retailers to implement specific merchandising plans that will be most effective in moving broilers into consumption. This research also identified and quantified factors affecting prices received by producers for live broilers. The major ones are: (1) season; (2) supply of broilers including cold storage handling; (3) terminal market price of pork; and (4) wholesale price of turkeys.

Retail food store sales tests of packaged Florida grapefruit indicate consumers have a significant preference for packaged fruit compared with loose or bulk displays and that there is considerable opportunity for increased movement of grapefruit through consumer packaging and proper identification. Sales of Indian River grapefruit were 28 percent higher and interior grapefruit 46 percent higher when offered in polyethylene bags containing six fruit than from bulk displays. Tests also indicate that labeling packaged grapefruit is a stimulant to sales when the label is well known or associated with quality. Sales of Indian River pink grapefruit in labeled bags were 63 percent above fruit displayed in bulk. On the other hand, sales of interior grapefruit were about the same for bagged display whether labeled or unlabeled. Packaging produced significantly larger sales for both Florida, Indian River, and interior grapefruit.

The feasibility and value of using computers to simulate information required in agricultural marketing firms' decision making has been illustrated by research conducted with feed manufacturing and retail food firms. A study of mixed feed operations showed that linear programming can be a valuable management tool for computing feed formulas, anticipating changes in ingredient usage rates, and developing feed specifications. Gross savings of \$1.70 per ton were attributed to the use of LP during a 23-week test period in two firms. Linear programming appears to be profitable for the small- and medium-sized manufacturers as well as the larger ones. Also, similar techniques can be employed by management to assemble cost information on procurement, inventory, ingredients, transportation, and distribution, and to arrive at a system of distribution, plant location, plant size, transportation facilities, inventory of drugs, etc., that will provide farmers with lower cost feeds. Management techniques now being tested for an entire feed manufacturing firm operation should apply to other agricultural industries.

A study of food stores indicates that space in frozen food departments could be used more effectively if management were to assess the costs and movement of individual products in allocating display area. Primarily responsible for the favorable profit position of frozen foods were high gross margins of 25.6 percent of sales and low variable cost of 3.7 percent. Three product groups--drinks, vegetables, and dinners--accounted for over half the sales of frozen food during the experiment. Gross margins, rate of turnover, and returns per square foot of display space showed considerable variation among the 13 product groups in the frozen food department.

In like manner, research conducted and underway point up the complexity of meat merchandising relative to sale effectiveness and the need for management tools not presently available. Fresh poultry and beef products increased over 2.5 times and pork loin 1.4 times normal when each was featured. Since retail labor costs vary considerably among meat products, it would appear that this cost could be reduced if management were to give more attention to labor requirements and product movement in determining product features. The response of individual primal cuts to advertising

and price change is being further analyzed to clarify the effectiveness of sales practices--information essential to management in more effectively and efficiently merchandising of meat.

C. Distribution Programs and Market Outlets

How well public distribution programs meet the needs of the people to whom they are directed and their effectiveness in developing stronger markets for farm products are examined by a continuing research effort. Answers to these questions when related to program cost and their effect on farm income provide a sound basis for program administration and for policy decisions and legislative action in formulating and executing public food distribution programs and developing market outlets.

Survey findings indicate the National School Lunch Program is not available to children attending several thousand urban schools, including many older schools in low-income central city areas where installation of kitchen and lunchroom facilities was not feasible. To determine the effectiveness of a central kitchen approach, a detailed operational study was undertaken of eight school lunch programs, including New York City and Washington, D.C., utilizing alternative types of central lunch preparation systems. Findings indicate that where there are urgent nutritional needs, a system for central preparation of cold packaged lunches meeting nutritional requirements generally can be established rapidly and at relatively little facility cost by utilizing existing school kitchens. Several types of lunches with hot and cold items can be prepared for either lunchroom or classroom service--however, alternatives will be limited by physical conditions in receiving schools. The choice of a central kitchen system will be determined primarily by local conditions.

A report of study findings outlines procedures, problems, and operational criteria concerning alternative forms of school lunches meeting program nutritional requirements--regular plate, tray-pack, soup and sandwich, and bag lunches--and develops hypothetical cases in a manner permitting application to local situations. Funds for new kitchen facilities have been made available through recent aid-to-education legislation. Research results have facilitated planning and action at the local school system level.

Findings from a study of the market for food in schools indicate more than \$1 billion in food (wholesale value) was used in school lunchrooms during 1962-63. Approximately 80 percent of this food was obtained locally. Comparisons with an earlier study of public schools (1957-58) indicate an expansion in value of foods by 56 percent in 5 years. This gain resulted primarily from more children eating. However, average value of consumption also increased--primarily meats and dairy products. Findings from the market for food in school surveys and related studies concerning availability of school lunches and milk have contributed to the proposed implementation of special Federal assistance under the National School Lunch Program to schools with a high percentage of needy children in attendance and have been used widely in other program evaluations.

A special survey of selected categories of qualified nonparticipating families in the Food Stamp Program in St. Louis has resulted in Federal-State actions increasing program effectiveness in Missouri and other States. Findings also have contributed to better understanding of income-food expenditure relationships among needy families.

A repeat survey of retail food store sales in Avoyelles Parish, La., indicates that the expansion in food sales resulting from initiation of the Food Stamp Program in this rural community is being maintained. In Washington, D.C., a similar survey of retail food store sales in low-income neighborhoods was conducted prior to initiation of the Food Stamp Program in June 1965.

Preliminary findings from a study of expenditures and consumption by low-income rural families indicate that consumption behavior differs substantially from that of higher income families. Money income, for example, was found to be relatively insignificant as a factor in predicting levels of family living compared with adequacy of housing and other measures.

In two studies conducted for Civil Defense, estimates were developed concerning inventory levels of food products and nonconcentrated fluids in retail food stores and away-from-home eating establishments. Food supplies adequate for 15.1 days were found in retail food stores, and 19 days in restaurants and other institutional food service establishments (2,000 calories per person per day). In the nearly 900 million-pound inventory in eating places, beverages (including alcoholic), fruits and vegetables, mostly processed, and sugars and sweets accounted for approximately three-quarters of the volume.

The National Survey of Household Food Consumption 1965 was initiated in March 1965. Important types of new marketing information to be obtained include measures of seasonal food consumption, food usage and expenditures by sex-age of consumer, and foods eaten away from home--when, where, by whom, and at what cost. Staff of the Marketing Economics Division contributed in the planning of marketing aspects of the survey which is being conducted under the direct supervision of the Consumer and Food Economics Research Division, ARS.

Detailed plans were developed for the projected survey of away-from-home eating. Approximately 145 trade associations, food and equipment manufacturers--a cross-section of the food and related industries--have contributed to a fund to match Federal appropriations for this project. The proposed survey of restaurants and institutional food service establishments aims to provide measures of quantities and types of food products utilized through major institutional food outlets, and the structure of the food service industry.

PUBLICATIONS--USDA AND COOPERATIVE PROGRAMS

A. Products and Services

Bird, Kermit, November 1964. Selected Writing on Freeze-Drying of Foods. ERS-147, 53 pp.

Bird, Kermit, May 1965. Palatability of Freeze-Dried Meats. Food Technology, 16 pp.

Clayton, Larry B., January 1965. Completely Launderable All-Wool Apparel: The Potential Market. MRR-688, 17 pp.

Doty, Harry O., April 1965. Cooked Soybeans for Feed. ERS-228, 8 pp.

Enochian, Robert V., and Rollag, Norman L., July 1965. Differences in City Bread Prices and Their Implications. Bakers Weekly, 3 pp.

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Trotter, Warren K., November 1964. Economic Analysis of Air Classification. The American Miller, 7 pp.

B. Merchandising and Promotion

Brown, Sidney E., and Pape, Eugene C., Jr., January 1965. Fresh Grapefruit Packaged and Labeled Indian River--A Sales Test. ERS-212, 8 pp.

Frye, Robert E., and Leiman, Martin, January 1965. Point-of-Purchase Advertising and Factors Influencing Use in Supermarkets. MRR-692, 35 pp.

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Ott, Leland E., July 1965. Frozen Foods: Margins, Costs, and Returns in Relation to Display Space. ERS-235, 16 pp.

Stafford, Joseph H., Ott, Leland E., and Snyder, James C., August 1965. Managerial Aspects of Least-Cost Feed Formulation with Linear Programming. MRR-729, 19 pp.

C. Distribution Programs and Market Outlets

Freund, William H., and Reese, Robert B., June 1965. Milk and Milk Products in the Nation's Schools. MRR-716, 23 pp.

Kriesberg, Martin, October 1964. Food Service in Private, Elementary and Secondary Schools. MRR-678, 21 pp.

Kriesberg, Martin, November 1964. Food Service in Public Schools. MRR-681, 39 pp.

Kriesberg, Martin, April 1965. The Market for Food in the Nation's Schools. MRR-702, 54 pp.

Reese, Robert B., May 1965. Establishing Central School Lunch Kitchens in Urban Areas: Problems and Costs. AER-72, 61 pp.

Van Dress, Michael G., May 1965. Estimated Number of Days' Supply of Food and Beverages in Establishments that Serve Food for On-Premise Consumption--A Civil Defense Study. MRR-707, 80 pp.

Van Dress, Michael G., June 1965. Estimated Number of Days' Supply of Food and Beverages in Retail Stores, 1963--A Civil Defense Study. MRR-713, 81 pp.

Van Dress, Michael G., August 1965. Inventory of Food Products and Beverages in Establishments that Serve Food for On-Premise Consumption. MRR-707, Supplement, 9 pp.

Line Project Check List -- Reporting Year October 1, 1964, to September 30, 1965

Work and project number :	Work and line project titles	Work locations during past year	Line project included in Summary of : progress : (Yes-No)	Area and subheading
ME 1	Market structure and costs in the marketing of farm products			I-A
ME 1-5	Extent and effects of labor practices and provisions on the costs, adequacy, and structure of agricultural marketing	Washington, D.C.	Yes	I-A
ME 1-6 (Rev.)	Role of agricultural marketing and other firms in supplying additional employment and higher incomes for residents of low-income farm areas	Washington, D.C.	No	
ME 1-7 (Rev.)	Patterns of growth and change in the structure of agricultural marketing and supply industries and their probable economic consequences	Washington, D.C.	Yes	I-A
ME 1-11	Extent and effects of advertising and promotion on the costs, adequacy, and structure of agricultural marketing 1/	Washington, D.C.	No	
ME 1-12 (Rev.)	Marketing situation and outlook reports	Washington, D.C.	Yes	I-B
ME 1-13 (Rev.)	Farm-to-retail price spreads, the marketing bill, and other statistics on entire marketing process	Washington, D.C.	Yes	I-B
ME 1-14	Appraisal of uses made of and needs for marketing information 1/	Washington, D.C.	Yes	I-A
ME 1-15 (Rev.)	Providing statistical and economic information relating to the marketing of agricultural products	Washington, D.C.	Yes	I-B
ME 1-16 (Rev.)	Measurement aggregate economic relations in marketing farm food products	Ames, Iowa	Yes	I-A
ME 1-18	Long-term outlook for marketing western agricultural products 1/	Berkeley, Calif., and 11 western States	Yes	I-B
ME 1-19	Pricing practices of food firms of selected products	Washington, D.C.	Yes	I-A
ME 1-21	The effect of Federal regulatory activities on agricultural marketing and processing industries	Lafayette, Ind.	No	
ME 1-23	Long-term outlook for industries assembling and processing agricultural products in the Pacific Northwest 1/	Corvallis, Ore., and Pacific Northwest	No	
FE-ME 1	Changing structure and performance of the American Agricultural Chemical Industry and its coordination with farms	Washington, D.C.	No	
ME 2	Economics of marketing farm animals and animal products			
ME 2-1	Evaluation of present and alternative methods of establishing quotations and reporting prices for eggs	Washington, D.C.	Yes	I-A

1/ Discontinued during reporting year.

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Line Project Check List -- Reporting Year October 1, 1964, to September 30, 1965--Continued

Work and project number	Work and line project titles	Work locations during past year	Line project included in Summary of : Area : progress : and : (Yes-No) : subheading
ME 2-4	: Costs and margins of marketing livestock, meats, : and meat products 1/	: Washington, D.C.:	Yes : I-B
ME 2-8 (Rev.)	: Completion phase of study of characteristics and : impact of retail price wars in city milk : markets 1/	: Washington, D.C.:	No :
ME 2-12	: Costs and economies of scale in assembling and : processing turkeys	: Washington, D.C.:	Yes : I-B
ME 2-14	: Marketing Economics Division cooperation on : southern regional poultry marketing research : (SM-26) "The marketing structure for broilers in : the South and an analysis of the impact of a : national marketing order upon its economic : organization and efficiency"	: Washington, D.C.:	No :
ME 2-26	: Marketing Economics Division cooperation in : northeastern regional poultry marketing research : (NEM-21), "Effect of marketing changes upon : marketing costs and upon demand and consumption : of poultry meat"	: Washington, D.C.:	No :
ME 2-38	: An economic analysis of methods of determining : protein and solids-not-fat content as a basis : for purchasing milk 1/	: Davis, Calif., : : Washington, D.C.:	No :
ME 2-41	: Marketing Economics Division cooperation in NCM : regional project, "Adjustments in livestock : marketing in the north central region to changing : patterns of production and consumption" (NCM-25) : 1/	: Ames, Iowa : : Washington, D.C.:	No :
ME 2-42	: Flexibility in dairy products manufacturing : plants 1/	: Washington, D.C.:	No :
ME 2-43	: Procurement policies and practices of large- : volume distributors of eggs	: Washington, D.C.: : Columbus, Ohio : : Kingston, R.I. :	Yes : I-A
ME 2-45	: A study of the capacity and flexibility of : facilities in milk manufacturing plants	: St. Paul, Minn. :	No :
ME 2-47	: Marketing margins for fluid milk	: Washington, D.C.:	No :
ME 2-48	: Marketing Economics Division cooperation in : NCM-26 project, "Changing market structure and : organization of midwest dairy industry"	: Washington, D.C.: : Urbana, Illinois:	Yes : I-B
ME 2-49	: Procedures, marketing costs, and effects on : marketing of maintenance of egg quality from : laying house to consumer	: Washington, D.C.:	No :
ME 2-50	: Pricing and marketing milk used for other than : fluid purposes in fluid milk markets 1/	: Washington, D.C.:	No :
ME 2-52	: Market structures and pricing in the livestock : industries	: Washington, D.C.:	Yes : I-A

1/ Discontinued during reporting year.

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Line Project Check List -- Reporting Year October 1, 1964, to September 30, 1965--Continued

Work and project number	Work and line project titles	Work locations during past year	Line project included in Summary of progress (Yes-No)	Area and subheading
ME 2-53	Information systems for managerial decision-making in fluid milk plants	Washington, D.C. Lafayette, Ind.	Yes	I-B
ME 2-54	Cost-efficiency studies in marketing livestock, meats and meat products	Washington, D.C.	No	
ME 2-55	Determining costs, margins, and trends in the poultry and egg industries	Washington, D.C.	Yes	I-B
ME 2-56	Quarterly measurement and analysis of costs, margins, and efficiency for 70 selected fluid milk processing and distributing plants	Washington, D.C. Memphis, Tenn.	Yes	I-B
ME 2-57	Efficiency in managing the total milk supplies in fluid milk markets	Washington, D.C.	Yes	I-B
ME 2-58	Evaluation of existing and proposed programs of wholesale beef price reporting in southern United States	Washington, D.C. College Station, Texas	Yes	I-C
ME 2-59	Optimum location of livestock and meat marketing facilities in the southern region (SM-27)	Washington, D.C. Raleigh, N.C.	No	
ME 2-60	The impact of changing market structure upon the competitive position of the dairy industry in the South (SM-28)	Washington, D.C. Experiment, Ga.	No	
ME 2-61	Improving the efficiency of egg and production input marketing <u>2/</u>	Washington, D.C. Durham, N.H.	Yes	I-B
ME 2-62	Livestock marketing efficiency in the West	Washington, D.C. Denver, Colo.	No	
ME 2-63	Interregional competition in the poultry and egg industries <u>2/</u>	Washington, D.C. St. Paul, Minn. Brookings, S.D.	No	
ME 3	Economics of marketing farm crops			
ME 3-4	Margins and costs for tobacco leaf and tobacco products	Washington, D.C.	Yes	I-B
ME 3-8	Competitive position of western processed fruits (Rev.) and vegetables	Berkeley, Calif.	Yes	I-C
ME 3-22	Costs and efficiency of looseleaf tobacco auctions	Lexington, Ky.	Yes	I-A
ME 3-24	Optimizing use of flue-cured leaf tobacco grades (Rev.) in producing tobacco strips	Washington, D.C.	No	
ME 3-30	Changes in structure of wholesale fresh fruit and (Rev.) and vegetable markets	Washington, D.C.	Yes	I-A
ME 3-40	Impact of vine ripened (pink) tomato production on the Florida tomato market <u>1/</u>	Gainesville, Fla.	Yes	I-A

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1/ Discontinued during reporting year.

2/ Initiated during reporting year.

Line Project Check List -- Reporting Year October 1, 1964, to September 30, 1965--Continued

Work and project number :	Work and line project titles	Work locations during past year	Line project included in Summary of progress (Yes-No)	Area and subheading
ME 3-53	The impact of technological changes on the structure and organization of the California deciduous fruit industry--a phase of WM-43 1/	Berkeley, Calif.	Yes	I-A
ME 3-54	An economic evaluation of processing as a market outlet for vegetables in the Southeast 1/	Gainesville, Fla.	Yes	I-A I-B I-C
ME 3-59	"Eastern" beet sugar marketing problems 1/	Washington, D.C.	Yes	I-A
ME 3-62	Costs and margins in marketing sugar as affected by changing practices	Washington, D.C.	Yes	I-B
ME 3-66	Costs, prices, and competition in the red tart cherry industry 1/	East Lansing, Mich.	Yes	I-B
ME 3-67	Structure and performance of the lower Rio Grande Valley fruit and vegetable market	Washington, D.C.	Yes	I-A
ME 3-72	Changes in the structure and performance of the California fruit and vegetable markets	Davis, Calif.	Yes	I-A
ME 3-75	Economic analysis of the structure and performance of the Red River Valley potato market	St. Paul, Minn.	Yes	I-A
ME 3-76	Competitive relationships in marketing citrus products	Gainesville, Fla.	Yes	I-B
ME 3-77	Study of Canadian tobacco auctions	Guelph, Ontario, Canada	Yes	I-A
ME 3-80	Sheller margins and market patterns for peanuts 1/	Washington, D.C.	No	
ME 3-81	Economic evaluation of the commercial utilization pattern for peanuts at the sheller level	Washington, D.C. Raleigh, N.C.	Yes	I-B
ME 3-82	Tobacco quality and the pricing system 1/	Washington, D.C.	No	
ME 3-88	An economic analysis of federal market orders for fruits, vegetables and potatoes	Washington, D.C. Gainesville, Fla.	Yes	I-A
ME 3-90	Prices and margins in marketing fruits and vegetables	Washington, D.C.	Yes	I-B
ME 3-91	Marketing industrial molasses	Washington, D.C.	Yes	I-B
ME 3-92	Economics of marketing sugar	Washington, D.C.	Yes	I-A I-C
ME 3-93	Costs of packing and storage of Michigan apples 1/	East Lansing, Mich.	Yes	I-B
ME 3-94	Economics of marketing floricultural products	Washington, D.C.	Yes	I-A II-B
ME 3-96	Economic effects of noncaloric sweeteners on the sugar industry 2/	Washington, D.C.	Yes	I-A

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1/ Discontinued during reporting year.

2/ Initiated during reporting year.

Line Project Check List -- Reporting Year October 1, 1964, to September 30, 1965--Continued

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Work and project number :	Work and line project titles	Work locations during past year	Summary of progress (Yes-No)	Line project included in Area and subheading
ME 3-97	: Existing capacity and resource requirements for processing fruits and vegetables in the southern region <u>2/</u>	: Gainesville, Fla.	Yes	I-A
ME 3-99	: Marketing margins and costs for sugar beets, sugarcane, peanuts, and leaf tobacco for selected consumer products <u>2/</u>	: Washington, D.C.	No	
ME 4	: Economics of new, expanded, and alternative uses of farm products	:	:	
ME 4-2 (Rev.)	: Market potential for superconcentrated (7-fold) fruit juices	: Washington, D.C.	Yes	II-A
ME 4-6 (Rev.)	: Market potential investigations for products from new crops for industrial, feed, food, or pharmaceutical use	: Washington, D.C.	Yes	II-A
ME 4-17	: Market potentials for Hawaii farm products	: Honolulu, Hawaii	Yes	II-A
ME 4-18	: Superseded by ME 4-32	:	:	
ME 4-20	: Market potentials for interfacial polymerized wool in textiles <u>1/</u>	: Washington, D.C.	Yes	II-A
ME 4-21	: Market potentials for sweetpotato flakes in selected markets	: Washington, D.C. : New Orleans, La.	No	
ME 4-22	: Market potentials for cereal grain starch products in new industrial uses	: Washington, D.C.	Yes	II-A
ME 4-23	: Market Potential for low-fat fluid milk	: Washington, D.C.	Yes	II-A
ME 4-24	: Market potentials for water-soluble gums and mucilages	: Washington, D.C.	No	
ME 4-25	: Market analysis of the processing and marketing of maple sirup and other maple products	: Pennsylvania State University	Yes	II-A
ME 4-27	: Economic potential for crambe abyssinica as a new commercial farm crop	: Washington, D.C.	Yes	II-A
ME 4-29	: Market potentials for safflower oil	: Washington, D.C.	Yes	II-A
ME 4-30	: Market potential for modified beverage milk in the southeast United States	: Clemson University	Yes	II-A
ME 4-31	: Economic impact of innovations in food processing	: Washington, D.C.	Yes	II-A
ME 4-32	: Market potentials for hides with new product outlets, new marketing practices, methods of trimming, grading, and price	: Washington, D.C.	Yes	II-A
ME 4-33	: Market potentials for frozen bakery products and doughs <u>2/</u>	: Washington, D.C. : Berkeley, Calif.	Yes	II-A

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1/ Discontinued during reporting year.2/ Initiated during reporting year.

Line Project Check List -- Reporting Year October 1, 1964, to September 30, 1965--Continued

Work and project number :	Work and line project titles	Work locations during past year	Line project included in Summary of progress (Yes-No)	Area and subheading
ME 4-35	: The potential market for sterilized milk concentrate in selected types of institutions <u>2/</u>	: Washington, D.C. : Madison, Wis.	Yes	II-A
ME 5	: Evaluation of the effects of merchandising methods and practices on sales of and consumer demand for farm products	:	:	:
ME 5-4	: Evaluation of the sales effectiveness of a special promotional campaign for frozen concentrated orange juice. <u>1/</u>	: Washington, D.C. : Florida, N.Y.	Yes	II-B
ME 5-8	: Development of statistical bulletin of household purchases and retail availability data for selected fruits and juices, 1950-60 <u>1/</u>	: Washington, D.C. : New York	Yes	II-B
ME 5-9	: Increased produce sales through improved merchandising in retail food stores	: Washington, D.C.	Yes	II-B
ME 5-14	: Economics of inventory control and space management in warehousing agricultural commodities	: Washington, D.C.	Yes	II-B
ME 5-17	: Evaluation of the sales effectiveness of selected advertising and promotion techniques for broilers	: Washington, D.C. : Ohio	Yes	II-B
ME 5-18	: Impact of pricing policies, procurement, and merchandising practices of discount houses on conventional food distribution <u>1/</u>	: Washington, D.C. : New York	Yes	II-B
ME 5-19	: Measurement of food stocks and nonconcentrated fluids in warehouses at the wholesale level of distribution <u>1/</u>	: Washington, D.C.	Yes	II-C
ME 5-20	: Appraisal of expenditures by agricultural producers for advertising, promotion, and public relations activities <u>1/</u>	: Washington, D.C.	Yes	II-B
ME 5-21	: Costs and returns of promotional investment on consumption of milk and its products	: Washington, D.C.	Yes	II-B
ME 5-22	: Market analysis and development of the desert citrus laboratory of Arizona and California	: Washington, D.C. : Arizona	Yes	II-B
ME 5-23 (Rev.)	: Analysis of consumer purchases of selected fresh and processed fruit products in relation to consumer characteristics, geographic regions, and other market factors.	: Washington, D.C. : New York	Yes	II-B
ME 5-24	: Economics of pricing, merchandising, and labor utilization in retailing meat products	: Washington, D.C.	Yes	II-B
ME 5-25	: Measurement of food stocks and nonconcentrated fluids on inventory in away-from-home eating establishments	: Washington, D.C.	Yes	II-B
ME 5-26	: Evaluation of effects of weekly features on the retail sales of selected fresh commodities, on sales of nonfeatured products and on store volume	: Washington, D.C.	No	:

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1/ Discontinued during reporting year.

2/ Initiated during reporting year.

Line Project Check List -- Reporting Year October 1, 1964, to September 30, 1965--Continued

Work and project number :	Work and line project titles	Work locations during past year	Line project included in Summary of : Area progress : and (Yes-No) subheading
ME 5-27	Evaluation of the effects of various promotional themes and techniques on sales of fresh peaches	Washington, D.C. State of Wash.	No
ME 5-29	Appraisal of the effectiveness of the Amsterdam Trade Fair Exhibition and Symposium on sales of American Farm Products	Washington, D.C.	No
ME 5-32	Economic implications of advertising and merchandising programs for livestock and livestock products 2/		No
ME 6	Distribution programs research		
ME 6-4	Surveys and analyses of new food distribution programs for low-income households 1/	Washington, D.C. St. Louis, Mo.	Yes II-C
ME 6-5	Surveys and analyses of effect of food-stamp operations on sales of food in retail outlets	Washington, D.C. Louisiana	Yes II-C
ME 6-6	Market for food in public and private schools	Washington, D.C.	Yes II-C
ME 6-7	Study of consumption patterns of moderately high income families	Minnesota	No
ME 6-8	Surveys and analyses of commodity distribution programs for low-income households	Washington, D.C. Pensacola, Fla.	No
ME 6-9	Central food preparation and distribution in urban school systems	Washington, D.C.	Yes II-C
ME 6-10	Evaluation of the institutional market for food	Washington, D.C.	Yes II-C
ME 6-11	Low-income rural family expenditures and consumption related to the food-stamp and direct distribution programs	Washington, D.C.	Yes II-C
ME 6-12	National surveys of food consumption in households for the mid-1960's guidelines for food marketing	Washington, D.C.	Yes II-C
ME 6-13	Food stamp program research	Washington, D.C.	Yes II-C
ME 7	Transportation costs and services and their economic effect on agriculture		
ME 7-1	Economic research and consultation to meet current requests for information	Washington, D.C.	Yes I-C
ME 7-2	Development of statistics for the transportation bill and rail freight rate indexes	Washington, D.C.	Yes I-C
ME 7-4	Determination and analysis of costs of motor carriers engaged in the transportation of farm products 1/	Washington, D.C.	No

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1/ Discontinued during reporting year.

2/ Initiated during reporting year.

Line Project Check List -- Reporting Year October 1, 1964, to September 30, 1965--Continued

Work and project number	Work and line project titles	Work locations during past year	Line project included in Summary of progress (Yes-No)	Area and subheading
ME 7-6	Economic appraisal of the transportation of fresh fruits and vegetables from California and Arizona to interstate markets 1/	Washington, D.C.; Arizona, Calif.; and points of destination	Yes	I-C
ME 7-7	Alternative means to increase the flexibility and reduce the costs of railroad grain transportation services 1/	Washington, D.C.; Chicago, West- North Central States	No	
ME 7-8	Analysis of the economic possibilities of using airfreight for moving agricultural commodities	Washington, D.C.	No	
ME 7-10	Ocean freight rate series	Washington, D.C.	Yes	I-C
ME 7-11	Economic analysis of trends in the transportation of grain in the Northwest 1/	Bozeman, Montana; Washington, D.C.	Yes	I-C
ME 7-12	Economic analysis of the grain transportation system in the Southwest 1/	Washington, D.C.; and the South- west	No	
ME 7-13	Effects of transportation changes on the structure of grain marketing and grain marketing firms (contributing project to NCM-30, "Grain marketing institutions and the structure of grain markets")	Washington, D.C.	Yes	I-C
ME 7-14	Effect of transportation on the South's grain marketing structure	Washington, D.C.	Yes	I-C
ME 7-15	Hay flows and transportation charges	Washington, D.C.	No	
ME 7-16	Transportation of raw cotton by motortruck in southeastern United States	Washington, D.C.	Yes	I-C
ME 7-17	Economic analysis of trends in grain transportation in the United States	Washington, D.C.	No	
ME 7-18	An analysis of the effects of changes in transportation costs on the regional location of the flour milling industry	Ames, Iowa	No	
ME 8	Economics of marketing fibers, grains, and oilseeds			
ME 8-1	Charges and practices in marketing cotton	Washington, D.C.	Yes	I-B
ME 8-2	Marketing margins and costs for fibers and textiles	Washington, D.C.	Yes	I-B
ME 8-3	Price spreads and costs for grain and grain products	Washington, D.C.	Yes	I-B
ME 8-4	Marketing margins for fats and oils in selected consumer products	Washington, D.C.	Yes	I-B
ME 8-5	Cotton ginning efficiency and cost	Arizona Mississippi	Yes	I-B

1/ Discontinued during reporting year.

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Line Project Check List -- Reporting Year October 1, 1964, to September 30, 1965--Continued

Work and project number	Work and line project titles	Work locations during past year	Line project included in Summary of progress (Yes-No)	Area and subheading
ME 8-6	: Costs of operating grain elevators <u>1/</u>	: Washington, D.C.	: Yes	: I-B
ME 8-7	: Cost and efficiency of warehousing and related : services for cotton <u>1/</u>	: Washington, D.C.	: Yes	: I-B
ME 8-8	: Cost and efficiency in the operation of feed : mixing plants	: Washington, D.C.	: Yes	: I-B
ME 8-9	: Structure and performance of the rice milling : industry <u>1/</u>	: Washington, D.C.	: Yes	: I-B
ME 8-10	: Costs and efficiencies in bread distribution	: Washington, D.C.	: No	
ME 8-12	: Cost and efficiency of grain storage and handling : in the spring wheat area <u>1/</u>	: Montana	: Yes	: I-B
ME 8-13	: Economic evaluation of cotton quality	: South Carolina	: Yes	: I-B
ME 8-14	: An economic evaluation of alfalfa hay grading	: Nevada	: Yes	: I-B
ME 8-15	: Pricing cotton in relation to fiber properties <u>1/</u>	: Washington, D.C.	: Yes	: I-B
ME 8-17	: Influence of classification and market information: : services on wool prices to producers <u>1/</u>	: Washington, D.C.	: Yes	: I-B
ME 8-18	: Organization, operation, and efficiency of the : marketing system for raw wool	: Washington, D.C.	: Yes	: I-A
ME 8-21	: Impacts of grain banks on feed milling and : farming <u>1/</u>	: Indiana	: Yes	: I-B
ME 8-22	: Changing structure and performance of the : Northeastern markets for grain <u>1/</u>	: Washington, D.C.	: Yes	: I-C
ME 8-23	: Industry structure and costs of storing sorghum : grains in commercial elevators <u>1/</u>	: Texas	: No	
ME 8-24	: Marketing and the use of cotton waste	: Mississippi	: Yes	: I-B
ME 8-25	: Structure and practices of the Western grain : marketing industry <u>2/</u>	: Washington, D.C. : Arizona	: No	
ME 8-26	: Structure and performance of the U.S. grain : marketing system <u>2/</u>	: Washington, D.C. : Oklahoma	: No	
ME 8-27	: Changes and performance of the major oilseed : markets in the U.S. <u>2/</u>	: Washington, D.C.	: No	
ME 8-28	: Costs of handling and storing grains, fibers, : oilseeds, and their products <u>2/</u>	: Washington, D.C.	: No	

1/ Discontinued during reporting year.

2/ Initiated during reporting year.